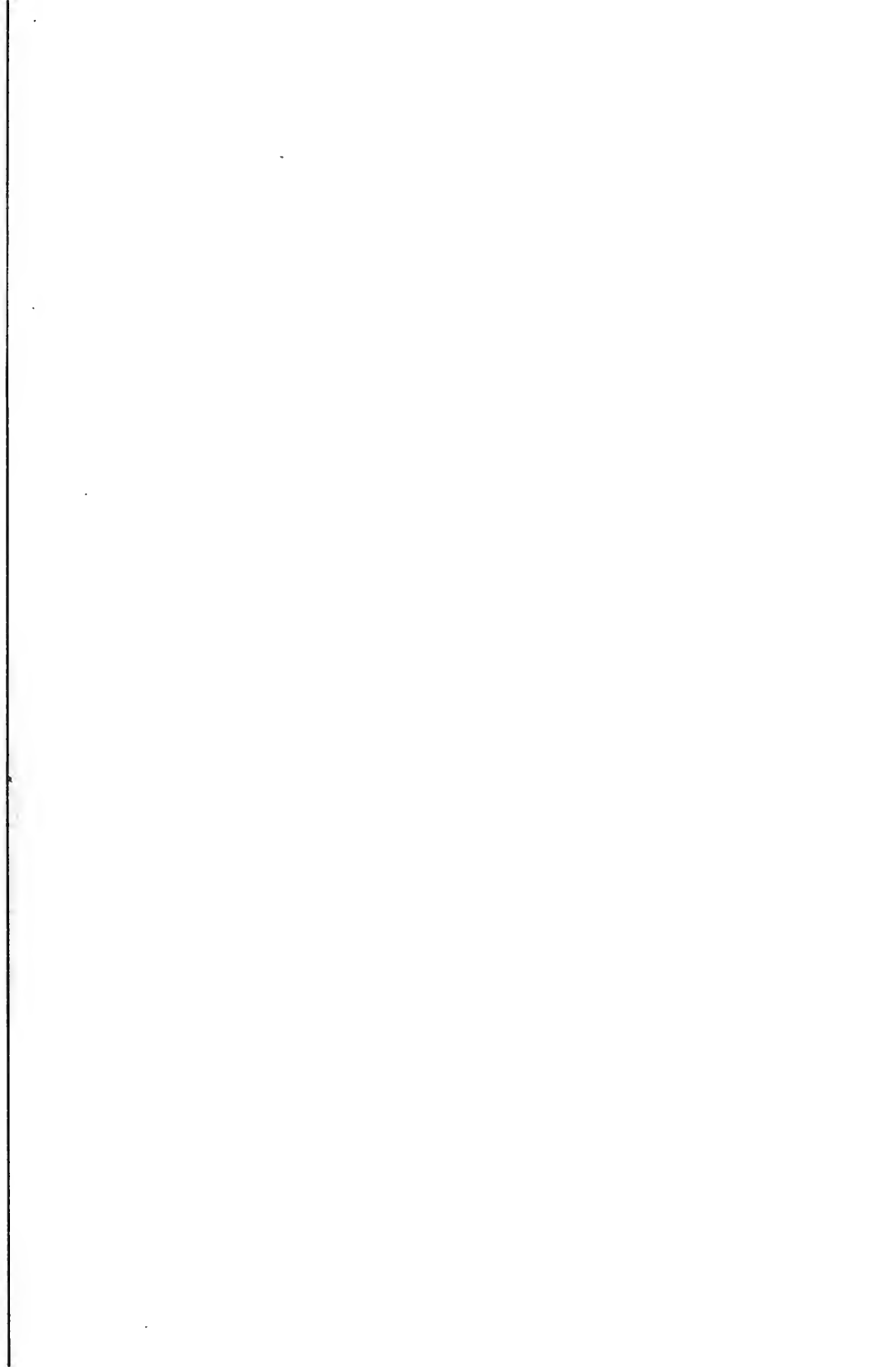




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THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

A RECENT JOURNEY FROM LAMU TO GOLBANTI, IN THE GALLA COUNTRY.—(*See Map.*)

By the REV. THOMAS WAKEFIELD, late of Ribé, East Africa.

[Delivered before the Members of the Society, at the Memorial Hall, Friday,
February 10th, 1888.]

MY companions on this journey were Mr. Bone, a young gentleman from Australia, and Mr. Doring, an African missionary, a native of Sierra Leone. We started from Lamu on the 10th of August of last year.

Lamu is one of the largest and most important towns on the East Coast of Africa, within the limits of the Zanzibar dominions, and is situated 2 degrees and 25 miles south of the equator. The first in the series of diagrams we are using to illustrate this paper is a large village on the island of Lamu. It is called Shêla, and is situated on the eastern angle of the island. Its inhabitants are Sawahilis—that is, aborigines of the East African coast. They originally came across the bay or harbour of Lamu, from the island of Manda, opposite, where they had been repeatedly attacked by the chiefs of Patte, an island a little way to the north. When they first settled at this place, and for a long time afterwards, the authorities of Lamu would not permit them to build anything more substantial than wattle-and-daub dwellings, fearing—as the former told me—that if the strangers should grow strong, and rebellious, they might find it difficult to dislodge them from stone buildings. But you will see from the diagram that Shêla can now boast of her stone houses, and these are occupied by fairly well-to-do citizens. There is a large school in the place, and a stone mosque, with a circular-pointed minaret, ornamented with a crescent cut in stone.

One of the prettiest sights seen from this place is the light-built fishing canoes, with triangular sails and double outriggers, belonging to the fishermen of Lamu-town and Shêla, proceed-

VOL. IV.—Nos. 1-6—JAN. TO JUNE, 1888.

ing in the morning to their fishing-grounds, and returning in the evening with their spoil for the markets. Light-built and light-rigged, with a large, thin sail of Manchester drill, these canoes fly with astonishing speed before the wind, heedless of a chopping sea, and crested, foaming waves. The canoe-men, being often dressed in red and white garments, and their heads crowned with fez caps and bright-coloured turbans, make the scene look still more picturesque and striking.

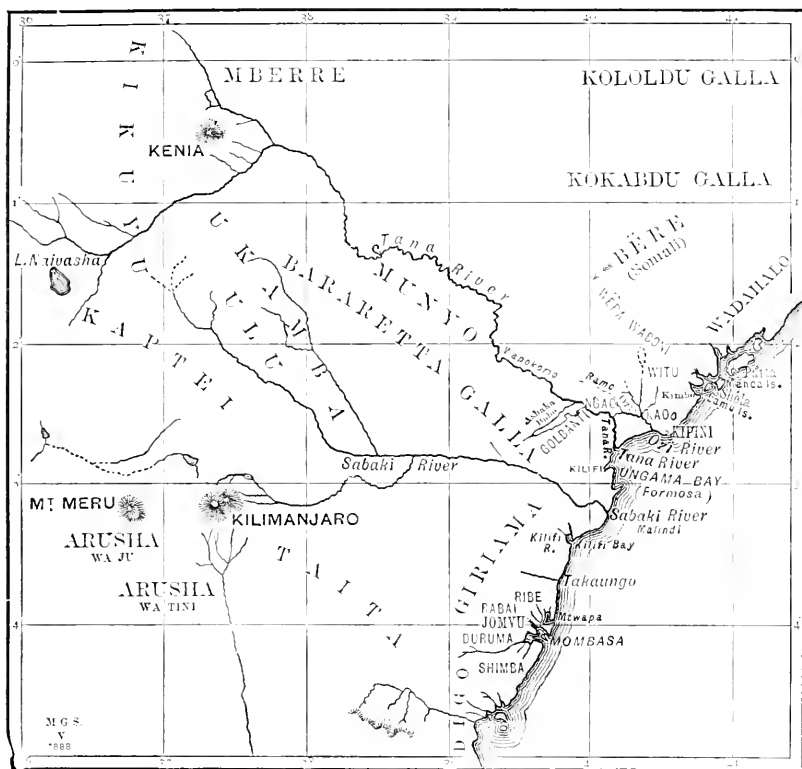
In leaving the island of Lamu for the Galla country, we sometimes go by sea to Kipini, at the mouth of the Ozi river. In this case we shall sail along the harbour, and cross over to the mainland, and then proceed on foot to the Ozi river.

Having previously had many difficulties with the Gallas, owing to the Muhammadans of Káo* secretly intriguing against us, we made a formal and strong complaint against the conduct of those men to the Governor of Lamu, and through him to the authorities of Kao. Instead of giving us letters, he gave us a middle-aged, respectable-looking man (with elephantiasis in one of his legs) to represent our case, and to make our way clear. We hadn't much confidence in this man's help, as the Muhammadans have always practised so much double-dealing with us; and so, During, referring to the messenger, said to me on the boat, "Very likely, in this man, we are carrying the knife which will cut our throats." By this he meant that, whilst *ostensibly* serving us, he would *secretly* work with the authorities of Kao *against* us.

Having engaged a large native boat, called a "dhow," we were tacking and zig-zagging about from the forenoon till four o'clock, when we reached a district called Ngói. Here we landed on a clean, sandy beach, and we commenced our land journey. The path led us through a pleasant, level country, with short, turfy grass, and on either hand there was an abundance of fan-palm trees. Having walked for an hour in a westerly direction, at five o'clock we came upon our destination for the night, a settlement called Kióngwe. A middle-aged man met us about 200 yards from the village, clad in a long white shirt, which reached from his head to his feet; a grey shawl was thrown carelessly over his shoulders like a Highlander's plaid, and a turban of black and white cloth was wound carelessly and unostentatiously round his head. He shook hands with me, and said, in English, "Good morning! Yes!" I replied, "Good morning!" though it was only an hour from sunset! He then shook hands with Mr. Bone and Mr. During. Then, turning round, and heading our procession, he said, "I go," and we followed. On the way he said, very slowly and deliberately, "Come—to—my—house," and he led us into Kióngwe, not to

* A town on the Ozi river.

his *own* house, but to that of the principal resident there. We asked our English-speaking friend if he would kindly supply us with a few young cocoanuts for drink, as we were very thirsty. He immediately handed over his dirty-looking turban to a boy, and told him to go with that (as a proof he had *sent* him) to some one he named, and bring ten young nuts. The cocoanuts came, and were very refreshing. We were now in a courtyard, in the verandah of a large house, thatched with leaves of the



Map to illustrate the Rev. T. Wakefield's paper on the Galla Country. Prepared and printed for the Journal of the Manchester Geographical Society.

fan-palm tree. The owner—a very hospitable man—welcomed us to his house, and gave us a sheep, and rice, and eggs, and curdled milk. During and I enjoyed the latter, but Bone declined it. The East African races never take *fresh* milk, and always wonder at *our* doing so. Two native bedsteads were brought out for us to sit upon, and then commenced a busy scene in the courtyard. Three or four fires were lighted, and Athman, our cook, and Dzombo, our second bottle-washer, com-

menced cooking a dinner for us of fowls, presented to me by a man named Omari, who also gave me a dozen eggs. He is the son of the man who poisoned me in the year '78, in the Galla country, and who died at Lamu a little while ago. Our host very generously offered us his house, but we gratefully and gracefully declined it, saying that there was no necessity whatever for us to turn him out of his own house, as we much preferred to sleep outside in the verandah. One of the bedsteads, with a clean loin-cloth laid upon it, served as a table for Bone and me, During having arranged to dine and sleep elsewhere in the village. Two primitive stools were brought out of the house for our use. Each one had four turned legs, with a piece of hide stretched over the top like a drum, for a seat. We had some difficulty in accommodating ourselves to the stools, as the tops of the legs were about three inches higher than the level of the seat. The hide had been pierced with four large holes, corresponding to the tops of the legs, and the latter passed through, which kept the hide taut. We managed, however, fairly well. When our porters—who also had their fires, and had been busy cooking for themselves in the compound—had despatched their enormous pot of rice, During ordered them away to their sleeping quarters. Three of our men remained with us. We then “turned in,” and had a good night’s rest, all at the expense of our host, whom During had made his “friend” on a former occasion. During, by his geniality and good humour, has the happy knack of forming friendships as he goes about, and people are evidently pleased to see him. The last time he was here, our host gave him a goat and other things, for which hospitality he refused to take any remuneration! It was not the man who met us on the road, and took the opportunity to air his very limited vocabulary of English words, who entertained us, but quite another man altogether.

Kióngwe is a settlement of people from Patte, near Lamu. The village is situated close to the head of a creek running in from Kímbo, the place where people are ferried across the water from Lamu to the mainland. The village of Kióngwe has, probably, fifty or sixty huts, and is well supplied with cattle, goats, sheep, and fowls; and there are flourishing cornfields a short distance from the settlement. It has an excellent supply of good, fresh water, lying in a pond, which is supplied by a perennial spring. Our reception and entertainment at Kiongwe could not have been more respectful and hearty, though given quietly and without ostentation.

On Thursday, the 12th, we left Kióngwe at twenty minutes past eight o’clock a.m. Our English-speaking friend and Omari accompanied us a short distance, till we came to a path leading to Kimbo, whither they were bound. Here they shook hands with us and left us, and we went on for Mpéketóni. We had

obtained a donkey at Kióngwe to carry some of the loads, as we were rather short of porters, and a Kióngwe man to lead and take charge of the donkey for us. The beast of burden carried its loads in panniers made of palm-leaf matting.

The country through which we passed was level, frequently opening out into extensive grass-covered plains, park-like in appearance, dotted with trees, with here and there large ponds, thickly sprinkled with purple and also white water-lilies, and sometimes with a vegetable growth bearing yellow, star-shaped flowers. Fan-palms were exceedingly abundant, and here and there large mango trees indicated that the ground in those localities was, or had been, under cultivation. We also came upon rice and semsem-oil fields. White cranes, eagles, wild duck, and other birds were numerous; and men were watching in the fields, driving off rice-sparrows, which were pilfering in large numbers.

We reached Mpéketóni at about half-past eleven, mango and silk-cotton trees showing well out in the distance, and its lake—much larger than when I saw it in 1876—spread out at the base of the settlement. Several canoes were on it, and fishermen busy angling. Pelicans, white cranes, kingfishers, and other water-fowl were busy fishing for themselves, or basking in the sunlit meadows on its margin. Old spoor of hippopotami was abundant.

Here we killed our sheep, which had given us considerable trouble on the way, sometimes vigorously pulling back and refusing to go on, and then most pugnaciously butting the man who was leading him. We were received at this place by a tall, venerable old man, with a bushy, silvery beard. He gave us a house for our use during our stay, but we only accepted the verandah belonging to it. It has a bank, or platform, built of mud, about two feet high. Here we put our loads, and on this level bank of dried mud we slept at night—I, on an iron travelling bedstead. Bone slung himself up in a hammock, and During had secured lodgings somewhere else in the village. A woman, who seemed to have charge of the house, came and felt amongst some loose sand in a hole in the bank near the door, from which she drew a large wooden key. It was the key of the house, and that was the method she adopted for hiding it whilst she was away from home! The bright moon—nearly full—shone with intense clearness upon the sleeping porters stretched at full length around the embers of the camp-fires, and, being enveloped in white garments, and lying as straight as boards, suggested the idea of horizontal ghosts, or ghosts that might have been "*laid*." The Mpéketóni people hail from Kióngwe, and the Kióngwe people from Patte, near Lamu.

Friday, 13th. This morning we were all up in the twilight, and at six o'clock we marched out of Mpéketóni. Bone was ill

with fever on the way, not having completely shaken off the old attack, with which he landed at Lamu from the steamer, having taken the fever just before leaving Mombasa, and we arranged to have him carried. Fortunately the carrying-cot had not gone on ahead to Kipíni.

We halted at Ukánga, a place about two hours' march from Kipíni, rested, and had some refreshment. There are several fine baobab and mango trees there. Formerly there was a village at Ukánga, but Simba's people destroyed it. Our course from Ngói to Ukánga was about due west by the sun; but from Ukánga our path led us about north-west by north. Between Ukánga and Kipíni the soles of my feet swelled, just at the root of my toes, and pained me exceedingly; and I had great difficulty in trudging along. By-and-by, however, as we got out into the clear, open country, and saw the lower land lying stretched out before us, the place of our destination was sighted, and that sight gave me all the inspiration implied by the well-known poetic stanza—

“As when the weary traveller gains
The height of some o'erlooking hill,
His heart revives, if, 'cross the plains,
He sees his home, though distant still.”

About a mile before we reached Kipíni we descended into a beautiful level plain, several miles across. In the distance it was bounded by a wall of fine trees, in the foreground was a morass nearly covered with vegetable growth, and a herd of cattle, with African “cowboys,” filled up the picture. Then, climbing higher ground, we shuffled along through loose, dry sand, ankle deep. This was exceedingly trying to my swollen feet, and gave me great pain at every step. When we had struggled through this loose sand, we were glad to enter the settlement of Kipíni. During had kindly hurried on before us, and, on our arrival, had a house ready for our occupation.

Sunday, 15th. We remained here to-day, to give Bone a rest, and right glad was I of it for my aching feet. But I longed for an English Sabbath. To spend the day in this sandy place, with surroundings of dust and dirt, without sanctuary, or psalm, or prayer, was painfully incongruous; but it is one of the usual trials to a missionary on the march.

There were a lot of Somalis here, who had come to sell cattle—mop-headed, and all armed with spears and shields. They are a wild-looking folk! However, without any solicitation on our part, two of them presented us with a large jugful of new milk, frothed, and fresh from their cows. During told me that they have done the same thing for him beforetime. They paid us several visits, and showed themselves very friendly.

In the afternoon Bone and I were attacked by fever. We took quinine, and both of us spent a strange night. I gave

myself a much larger dose of quinine than I had been used to, or had intended. All night long my brain seemed to be ringing with the shrill screech of thousands of insects, each one singing a different tune, and in a different key from the others. When I stepped off our earth-throne—the bank of dry mud on which we had slept—the sensation I experienced was most peculiar: my feet seemed as though they scarcely touched the ground. I might have been treading on air, or on one of those soft, fleecy, rolled-up masses of cloud which stand out so conspicuously in a blue East African sky in the soft summer time, between the rainy season and autumn; and my head so light that it seemed far above me. Bone said that *his* experience was exactly the same as mine. He remarked that he had never felt so tall in all his life.

Monday, 16th. We left Kipini a little after two o'clock p.m. in the mission-boat which is kept at this place. Our men—excepting those who were told off to row us—went up the Ozi river in canoes belonging to the mission, being much lighter craft than the boat, and these men took up our bedding, cooking-pots, and the general *materiel* of our little expedition.

We arrived at Káo, a Muhammadan settlement, in the twilight of the evening. We were courteously received by the Káo people, and a young man—a personal friend of During's—gave up his house to us. Bone and I slept, as usual, in the verandah. Our host removed his wives to apartments shut off from those to which we had access. Soon after we entered the house he took a fowl from under one of the bedsteads—of which there were several in the room—and made us a present of it, and then ten or a dozen eggs on which the fowl had been sitting! They turned out to be fresh, however. There were plenty of mosquitoes to interfere with our sleep, but not so many as there are sometimes, but quite sufficient to render sleep impossible to a European, unless provided with a mosquito net. We had no lack of visitors. The principal men of the place came in large force to see us, as is customary at such places; but we got rid of them in time to allow us to commence the night's rest at a fairly good hour.

Tuesday, 17th. This morning During had great difficulty in getting men to punt us along the upper course of the river, as there was a three days' Muhammadan festival on, and Tuesday was the first day of the three. He succeeded at last in getting others than those applied for, and with those, together with our own men, the canoes were manned. During said to me, "I have given you the two best men, Mr. Bone the two next best, and I take the apprentices;"—meaning by the latter those who were yet amateurs as canoe-men. The working crew of one of these dug-outs consists generally of two men, one at the bows, with a long pole, forked at one end, for thrusting into sedge, or against

branches of trees, or into the mud, in punting; and a man at the stern, with a bat-shaped paddle, for steering, and otherwise assisting the man punting in the bows, who does nearly all the work of propulsion. He, however, could not do without "the man at the wheel," as every stroke of the punting pole sends the canoe away from the bank towards the middle of the stream, and the river being very deep, the punting pole can only be used at the sides.

The Káo people gave us a sheep before leaving, which we put on board for future use. About ten o'clock a.m. our little flotilla of four canoes started. Mine glided out across the river first, then came During's, then Bone's, and then one in charge of Uledi, an old and trusted servant of the mission. We had wind and tide against us, but made fair headway, occasionally gliding across the river, from side to side, to escape the full strength of the tide and shorten the course to be traversed, owing to the winding nature of the stream. We passed two small water-snakes. One of them hurried away from us, apparently in great fright, though almost at the opposite side of the river, but the other swam close alongside our canoe, and looked up at us with considerable audacity, for which he got a good smart stroke with the edge of the paddle from the steersman. The well-known habitat of hippopotami in the upper course of the river was lively with hippos. Bone had several shots at them. A little further up we met a canoe with Káo people, and they told us that a lot of Gallas had collected together, and were waiting for us. We didn't like the news, and During and I knew from experience of such incidents that there was "something up," something unpleasant awaiting us. We reached Mbelezoni (the dyke or canal connecting the Tana with the Ozi river) at ten minutes to three o'clock. This is the place we so much fear, on account of its being so terribly infested with mosquitoes. These stinging tropical gnats soon began to plague us. Before we got half-way through the dyke we came upon the Gallas seated on the grass, with their row of upright spears, and During—who had arrived a little before us—amongst them. We were ordered to stop, and not to pass. The order was given peremptorily by two of the principal Gallas. So our little fleet was moored to the bank on which the Gallas were seated, and, humiliated, we landed and took a seat amongst the Gallas. "Well," we said, "what's the matter?" Elmina—an old and crusty-tempered Galla—replied very curtly, "You must all go back to Káo, and to-morrow there will be a palaver there." This statement astonished and greatly irritated us, but we kept our temper. We replied that Káo had nothing whatever to do with us in connection with a matter between us and the Gallas. If we had any matter to settle with Káo, to Káo we would certainly go, but any matter between ourselves and

the Gallas must be settled between us and the Gallas exclusively; and being there on the spot, face to face, if they had anything to say we could talk the matter over. "No," said Elmina, "you must return to Káo, and we will come down to-morrow." We replied, "Then we will *not* return to Káo. We have been in the sun all day, in open canoes, and we have eaten nothing since the early morning." "Then you can sleep here," they said, "and go down in the morning." "What!" we said, "Here, on the edge of the dyke, which swarms with mosquitoes, and where we can't get a bit of firewood for camp-fires—and lions about—not a fagot with which to cook our food! Have you no consideration at all? We *can't* sleep here." After awhile they gave us permission to go as far as Chara, a place where there are a few Sawahili huts, just beyond the mouth of the mosquito dyke. During pointed out that Chara was scarcely any better than where we were, as no food whatever could be bought for ourselves or men, not even a banana, and urged that they should sanction our going as far as Omari Buya's village, a little way up the river. This the Gallas opposed with great determination, but During stuck out for it with as dogged a resolution as they, and ultimately these stubborn and unfeeling savages gave way. "But," they said, "mind, you are not to go *beyond*, and we will be there the day after to-morrow to see you." This decision we were glad of, though the concession delayed us two days on our way to the station. But what do savages care about delays? They place no value whatever on time themselves, and to delay travellers or missionaries on their way, when they are anxious to get on, is a matter which receives no consideration from such men. The Gallas had hitherto sat on the grass, with their spears held upright, the blades standing high above their heads. As soon as the matter had been settled each man got up, and, resting the spear-shaft on his right shoulder, and tilting the blade high up behind him—"shoulder arms" fashion—walked off. Most, if not all, tucked up their loin cloths, crossed the dyke at its shallowest part, and went away to their homes. When they had gone, we could not help thinking that they were even more troublesome than the mosquitoes themselves. As we saw them retiring we expressed our opinion very strongly about these unfeeling men, and their extortionate and unsatisfied avarice, for we had no doubt that the object of the whole affair was to get a *present* from us, as they said a former present given to the Gallas had been absorbed by others, whilst they (the Gallas of Chara) had not had their share. We also had very strong thoughts about that den of abominations called Káo, on the Ozi river, where the Muham-madans are constantly intriguing with the Gallas, and working all kinds of vile machinations against us, and trying to get the Gallas to turn us out of the country.

The daylight was fast on the wane when we got into our canoes, and recommenced our navigation of the dyke. I had been through the dyke several times before this, but was never so fiercely assailed by mosquitoes, or by such large numbers. They came down upon us from the thick sedge on either side, as though their fell purpose was nothing less than annihilation! It *was* an attack! They positively fell upon us in countless swarms! They descended furiously and continuously upon us, like snowflakes in a storm, when the wind drives and dashes them *at* you, *on* to you, and into your face, spitefully searching for any half-inch of surface that may be uncovered! They subjected us to a vigorous cross-fire! They had us in ambush. We knew they would, but there was nothing for it but to run the gauntlet. We were quite aware of the fact that there were mosquitoes in front of us, mosquitoes to the left of us, mosquitoes to the right of us, and that hosts were following in our rear! At every turn—and the dyke has many turns—we swept them from the sedge in thousands, aye, in tens of thousands! One minute we were on the *left* side, with our bodies bent forwards, pushing our heads through the over-hanging grass; the next minute we were on the *right* side, similarly engaged; the next we would come to a sudden, very sudden, stop—the nose of the canoe had stuck in the soft bank, and we had to remain for awhile stationary, which gave a dreadful advantage to our assailants. At such times they seemed to double their forces, and literally to cover us, dashing at every available part of the body. They got into my nostrils, and I had to snort them out; they got into my mouth, and I had to spit them out; they got into my ears, and I had to probe them out; they tried to get into my eyes, which I had constantly to keep blinking and winking, to keep them from forcing an entrance. Our arms were incessantly whirling about, and with our hands we were slapping and smacking ourselves all over. Sometimes I had the inexpressible pleasure of slaying a dozen at a single blow. Frequently, on stroking down the back of my head, I curled up about half-a-score of the enemy. I feel certain that I killed five or six hundred. Their carcasses lay thick in the bottom of the canoe, and many I consigned to a watery grave. Bone collected a matchbox-full of dead bodies in his own canoe, and that, he said, only represented a small proportion of the slain. One of our men came from the bank, and got into the canoe just behind me. As soon as he had squatted down he exclaimed, “Oh! oh!” and then I felt his big, splay hands pass down over my back, from my collar downwards. I knew what he meant—that my back was fairly *covered* with mosquitoes, and, as I had on a white coat, the appearance would be all the more startling. How many hundreds *he* slew I could not tell, as the carcasses fell to the rear. I was thankful to that man. He did me good

service, for he kept constantly flipping my neck and back with a cloth. He worked vigorously, and never ceased his kindly attentions, excepting now and then just for a second, that he might defend himself. However, the combined efforts of my friend and myself were far from sufficient to keep the foe at bay. In order to expedite the passage of the dyke, we were towed from the northern bank, each punting-man doing the double work of punting the canoe and keeping it off the angles of the dyke, whilst the man with the rope towed it along. The man who was punting was not always successful in evading the angles, for the dyke twists and turns at every few yards. Many a time we went full butt into one of the banks, and, the soil being loose and sometimes muddy, we frequently found ourselves tightly wedged.

When we got to the end of the dyke, During was standing on the shore between the dyke and the Tana river, very vigorously flipping himself all over with a pocket-handkerchief, and the natives who were standing with him were paying themselves special attention in a similar way. I got out, too. We waited a few minutes for Bone, and then, wondering why he didn't come on with his canoe, we passed into the Tana, for Omari Buya's village, as "the shades of night were falling fast." On we went until the night set in, a goodly number of mosquitoes—faithful creatures!—keeping us company all along the river. By-and-by Bone's canoe suddenly passed us, and then I learned for the first time that Bone had had an accident on the way, that he had *fallen into the dyke*, nearly up to the chin—and he is a tall man—his watch, rifle, and revolver all being drenched with water! Finding the mosquitoes almost too much for him, he had got out of the canoe, preferring to walk the rest of the way, and had slipped into the dyke from the bank, and, being much weakened from recent attacks of fever, he felt unable to get out again, but our men hauled him out, and he had stopped to change his clothes. He must have had a most miserable time of it, what with wet clothes, the darkness, and changing his toilet under a fierce attack of mosquitoes! But he only laughed at the incident when it was over.

About eight o'clock we reached Omari Buya's village, and right glad we were, though there were millions of mosquitoes waiting there also to draw our blood. We made a large smoke-fire, of dry and green grass mixed, and stood in the blinding smoke, which stung our nostrils, and brought the tears copiously out of our eyes; but anything—in the light of recent experience—seemed preferable to mosquitoes.

We placed a box to the windward of the smoke, covered it with a piece of calico, to serve as a table, and then snatched a hasty meal—hasty because of our little but persistent tormentors, and then up and into the rolling columns of smoke again.

The natives seemed to be as sensitive to the mosquitoes as ourselves, and were glad to stand round the fire. I said to During, "I wonder these people can voluntarily and permanently live in this perpetual nuisance." During's reply was, that it was not always so bad as at that season of the year. By-and-by, when we were completely tired out, we decided to turn in, During to a bedstead placed under the eaves of Omari Buya's hut, the bedstead being covered with a thin, muslin-like cloth, to keep out the pests, and Bone and I into the tent, close to, under the mosquito curtains. The tent was thronged with the little blood-suckers, and when either of us shot into the curtains with as quick a dive as we could manage, we had a man each to tuck us in sharp. "Now, Athman," I said to my man, "be ready. *Now!*" and carefully lifting the curtain on one side, with just sufficient space to allow for a dive, I suddenly disappeared. I was sorry for Athman, for the mosquitoes were all over his face, and hands, and legs. He rushed out of the tent, most energetically sweeping them off his body. And what about the *inside* of the curtains? Alas! there were scores of mosquitoes already waiting for me, but it was nothing to the hosts which we had shut out. I was weary, but could not sleep for the wretches which had forced their way in; so I went to the slaughter again, and got rid of a few more, and then dosed occasionally. My companion on the other side of the tent appeared to be worse off than myself, for he was constantly complaining of the number he had with him, and at last, driven to despair, he said, "I can stand it no longer." So he got out, and spent the remainder of the night pacing about through the smoke, rifle in hand, against a surprise from wild beasts. I fared better, for I snatched a little sleep occasionally until daylight, and soon after sunrise the enemy began to disperse.

Leaving this place in our canoes, we punted up stream against a two-knot current, and in about nine hours reached the Golbanti station, which is on the south side of the river, and a little below the Ashaka Babo Lake.

It was at the Golbanti station that the Rev. J. Houghton and Mrs. Houghton were massacred by the Masai, on the 3rd of May, 1886, together with a number of our Gallas and Wa-Pokomo. A few weeks before this attack on the station we also suffered a severe loss, when some of our best men—Christian and friendly Gallas—went out from the station a short distance after the Masai, in response to the urgent demand of the Galla chief. Our men were surrounded and speared by the invaders.

[It is well known that recently the map of East Equatorial Africa has been politically altered. A Board of Commissioners, representing the English, German, and French Governments, acting in combination, have delimited the dominions of the Sultan of Zanzibar. Those dominions have now a fixed boundary, recognised by the above Governments, and accepted by the Sultan. The territory of the latter is defined as a ten-miles breadth of country along the seacoast, stretching from a little

below the 2nd degree of latitude to a little below the 10th degree south, together with Pemba, Zanzibar, Mafia, and other smaller islands. Another change which has taken place is, that a large portion of country lying behind the seacoast is under the influence of a German Protectorate, and a smaller portion under that of an English Protectorate. The latter stretches from the south bank of the Tana river to Wasin, and inland to the Victoria Lake, or longitude between 34 and 35. The German "sphere of influence" commences with Wasin, and extends to the Rovuma river, and westward to the longitude above-named.]

British Interests in South Africa, as viewed by the Royal Colonial Institute.—The Council, deeply impressed with the importance of maintaining unimpaired British supremacy in South Africa, have urged upon the attention of Her Majesty's Government the necessity of securing Imperial interests in connection with Delagoa Bay, as well as of promoting and extending British commerce in every possible way with the possessions of His Majesty the King of Portugal, the South African Republic, and the adjacent Native Territories; they have further expressed a hope that, in view of the large commercial interests now involved, arrangements may be made for the adequate representation of Her Majesty's Government at the seat of government of the South African Republic; and that Her Majesty's Government will take such steps as may be necessary to avert danger to those interests by promptly complying with the request of the Queen of Amatongaland for the establishment of a British Protectorate over her dominions.—*Report of the Council, Royal Colonial Institute.*

Jerusalem: Nehemiah's Wall and the Royal Sepulchres. By GEORGE ST. CLAIR, F.G.S.—The topography of ancient Jerusalem has been difficult to make out, and the site of the sepulchres of the kings of Judah remains unknown. But the problem has been simplified by recent excavations, with which the writer has a professional acquaintance. We now for the first time know the contours of the rock and the features of hill and valley before the 80ft. of *débris* began to accumulate. The Akra of the Maccabees being identified, it is seen how, by the recorded filling up of the Asmonean valley, the two parts of the Lower City became joined into one *crescent*, lying with its concave side towards the Upper City, according to the description of Josephus. The investigations of Sir Charles Warren show that the temple must be placed on the summit of Moriah, with Solomon's palace south-east of it, leaving a vacant square of 300ft. where now we have the S.W. corner of the Haram area. From the S.E. corner of the Haram enclosure extends the wall of Ophel, discovered by Warren, running 76ft. to the south, then bending toward the south-west. Further, it is found that from the Gate of the Chain, in the west wall of the Haram enclosure, a causeway, with complicated structures, extends westward towards the Jaffa Gate. Having this groundwork we may proceed to place the walls. The third wall, built by Agrippa, does not concern us. As regards the second wall, it suffices for the present purpose to adopt the line of Herr Conrad Schick. The first wall was the wall of the Upper City. On the northern side it ran from the Jaffa Gate to the Haram wall. The uncertainty has been about its southern portion. The author gives, on a diagram, the line he has been led to adopt; and then shows that it corresponds in detail with the descriptions in the Book of Nehemiah. Taking Nehemiah's night survey, then the consecutive allotments of work assigned to those who repaired the walls; and thirdly, the points successively reached and passed by the processionists when the walls were dedicated, it is shown that every mention of a gate or a tower, the number and the order of salient and re-entering angles, and every other note of locality, exactly agree with the course of the walls as suggested. This course, moreover, involves the least possible variation from the present line of walls, and that more in the way of addition than of deviation. The hypothesis commending itself as true, by corresponding minutely with Nehemiah's descriptions, by tallying exactly with other Biblical references, and by meeting all the requirements of the case, it has this important practical bearing, that it indicates the site of the royal sepulchres, of the stairs of the City of David, of "the gate between two walls," &c., and shows incontrovertibly that Zion was the eastern hill.—*British Association, 1888.*

THE HEART OF EUROPE AS VIEWED FROM A
RAILWAY TRAIN, WITH NOTES OF A VISIT TO
CONSTANTINOPLE AND OTHER PLACES IN THE
OTTOMAN EMPIRE.—(*See Map.*)

BY MR. THOMAS NEWBIGGING, C.E.

[Addressed to the Members in the Library of the Society, Wednesday,
February 15th, 1888.]

IN fulfilment of a professional mission, I, last year, undertook a journey to Salonica, in the Ottoman Empire, going thence by the Orient Express by way of Varna, on the shore of the Black Sea, to Constantinople.

I ask you to imagine, as I read my paper, that we are in the railway train, viewing the country as we hasten along. This also will partially account for and excuse my somewhat desultory notes.

At the outset I may observe that the purpose I have in view is to record my own personal impressions of what came under my own immediate observation. I have studiously avoided the guide-books, whether good or bad, useful or misleading, preferring to tell the story of my experience in the course of my travels in my own way.

Notwithstanding a considerable experience of the world, of varied climates, of different races of people, with their peculiar manners and customs, and of life in general, I have never lost the sense of wondering curiosity which characterises youth. It is an invaluable trait of character for the traveller to possess, and the man who has lost it is not to be envied, for he is bereft of one of the precious possessions that make life worth living.

Our route is, first, from London to Paris, thence through the East of France by way of the Champagne country, forward through Southern Germany, crossing Lorraine and Alsace, then Baden, Wurtemberg, and Bavaria, right on through Austria and Hungary, Roumania and Bulgaria, to Varna on the Black Sea coast. All this by rail, with the exception of a short sail across the Danube from Giurgevo to Rustchuk. Then from Varna to Constantinople, and forward to Salonica by sea.

I had for travelling companion Mr. Jacques Nehama, a member of an esteemed firm of Jewish merchants in Salonica—a native of the latter place, but for several years resident in England—a gentleman highly gifted as a linguist, speaking with great ease and fluency no fewer than seven languages—English, French, Spanish, Italian, Greek, Turkish, and Russian, with a knowledge of German and Armenian. In the course of our

RAILWAY MAP

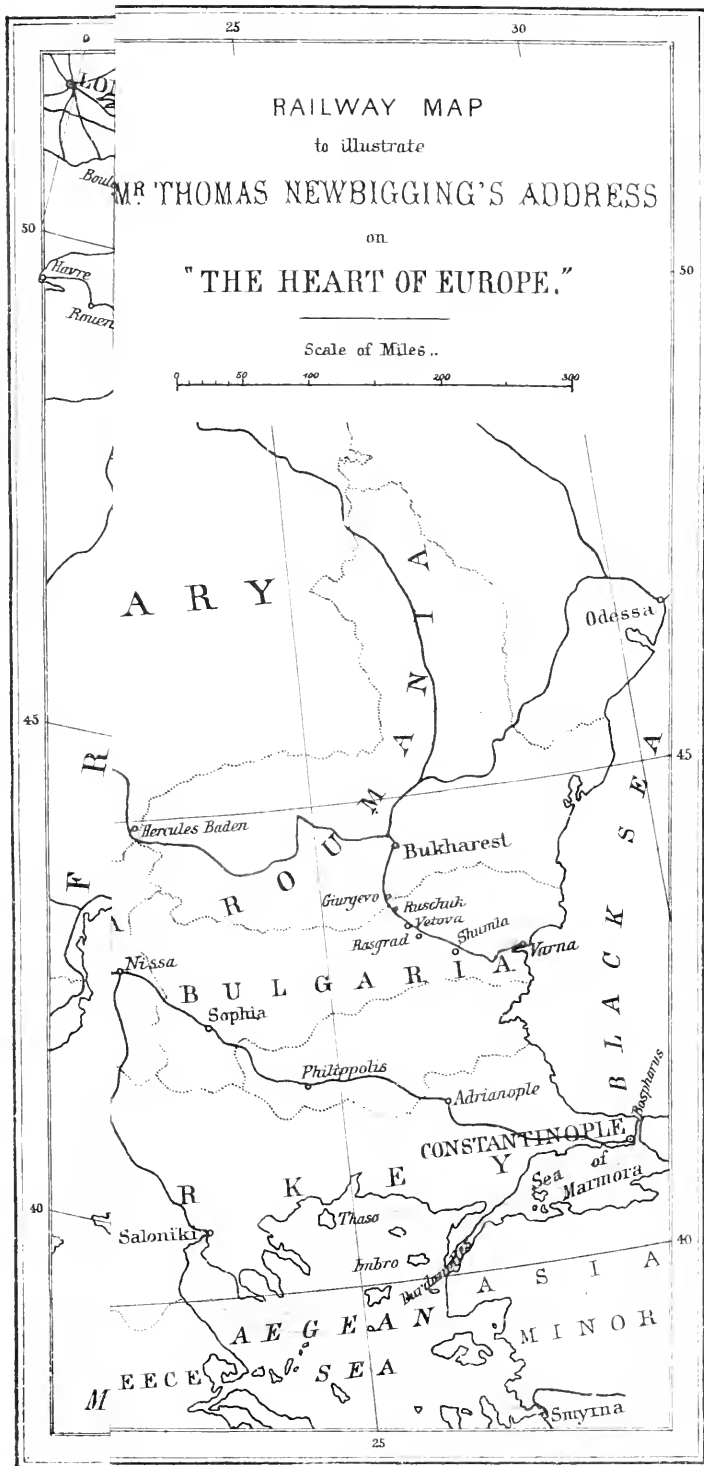
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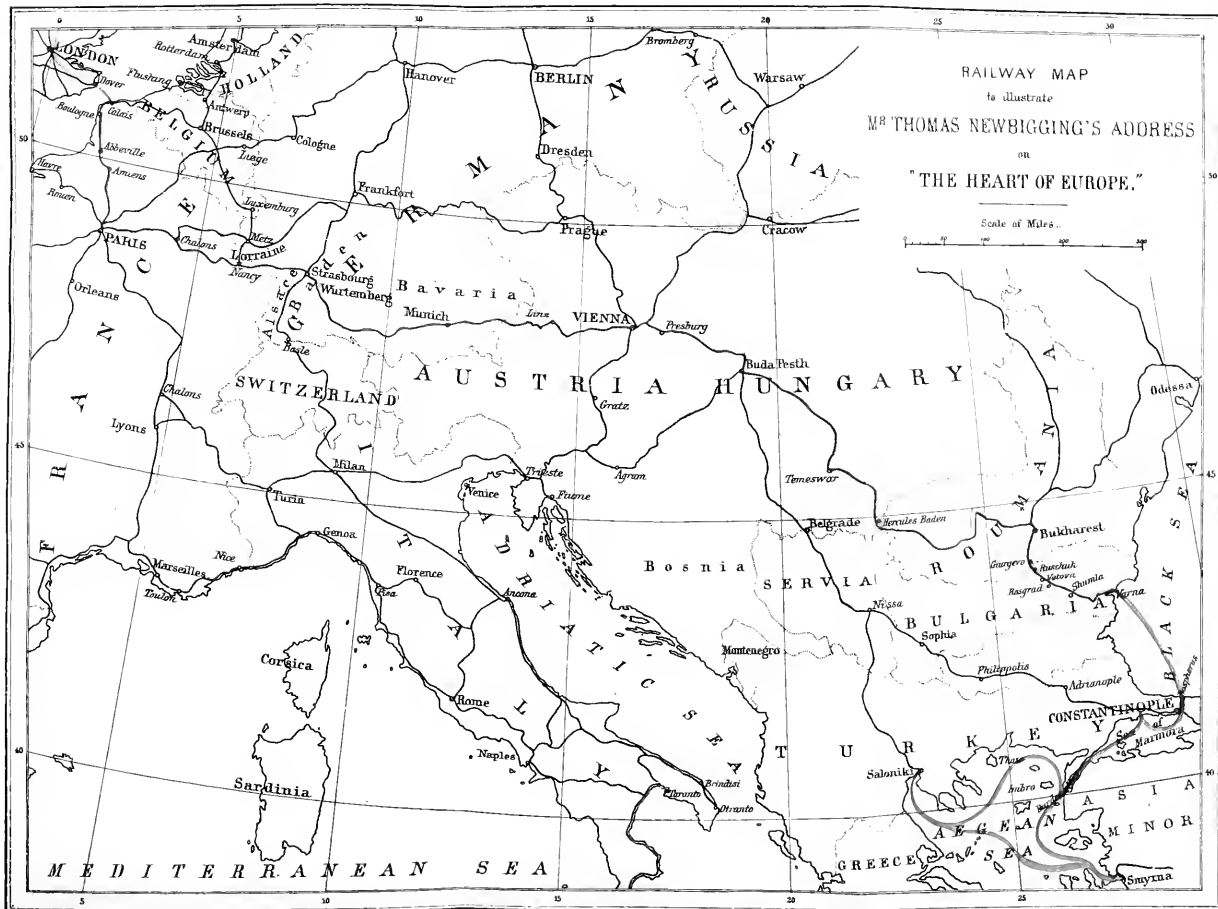
MR THOMAS NEWBIGGING'S ADDRESS

on

"THE HEART OF EUROPE."

Scale of Miles..





travels I had constant occasion to admire and envy his wonderful gift of tongues. I do not mean to imply that a knowledge of all these languages is necessary for the traveller in the East of Europe or Asia, though to possess it is a great accomplishment, and smoothes the journey; but this I do say, most emphatically, that, to fully and profitably enjoy such travelling, facility in the French language—in addition, of course, to English—is indispensable. With English and French, indeed, one may almost travel the wide world over, and feel at ease. This fact is scarcely realised by the managers of our English schools as it ought to be, or certainly the teaching of French would be rigorously enforced. German, no doubt, is useful, but it is by no means as widely spoken as the other language, and most Germans speak either French or English, or both.

We started from Victoria Railway Station, London, at 8 o'clock in the morning of Sunday, the 21st August, *en route* for Dover, which place we reached at 10 o'clock, embarking in the steamer for Calais at 10-15, arriving there at 12 noon; thence to Paris at 12-25, by way of Boulogne, Abbeville, and Amiens, reaching the capital at 5-40.

At Paris we took the Orient Express, which departs for Constantinople on Sundays and Thursdays at 7-30 p.m. This train is fitted up with carriages of the most luxurious description. These consist of saloon cars, sleeping, dining, and smoking cars, with nearly all the conveniences appertaining to a first-class hotel. Coffee, with bread and butter, is served to the passengers on rising in the morning. Breakfast at 10-30—an elaborate meal of four or five courses, in the French style, with wine or water as may be preferred. Dinner at 6 o'clock, equal to anything that a good hotel can supply, the courses—seven in number—served *a la Russe*, *recherché* and appetising, the best wines, dessert of grapes, peaches, pears, melons, and other fruits of the season, with coffee *a la Frank* or *a la Turk*.

Travelling through the East of France one is struck with the beauty and rich fruitfulness of the country. At this season of the year the fields, where the champagne grape is cultivated, are bright with the trailing vine, suspended on low poles, and extending for miles along each side of the railway. Returning by the same route a month later, the grapes were ripe for gathering, and by the end of September the fields are alive with busy hands garnering the luscious fruit for conveyance to the winepress.

The line of railway traverses the very heart of Lorraine and Alsace, now two of the richest provinces of the German Empire; and viewing their extent and fertility, one is not surprised that France should cherish, with undiminished resolve, the determination to wrest again the coveted territory from its German possessors. Darkness had set in as we passed through Lorraine,

but on the return journey we travelled through it and Alsace in the daytime. The same remark applies to the other portions of our route, so that no part of the panorama is missed by the travellers.

After a comfortable smoke and chat with my fellow-passengers I retired to bed at 10-30 on the Sunday night, and next morning was up and dressed by 5 o'clock, just as the train steamed into the station at Strasbourg, the capital of Alsace, standing on the banks of the twin rivers Ill and Bruche, which we crossed. The cathedral, though small, is a prominent feature of the city, and is fairly well seen from the railway. I am informed that its walls bear the marks of the bullets of the invading army during the siege of 1870.

There appears to be quite a host of officials standing about the different railway stations, on whose uniform buttons play a conspicuous part. At Strasbourg was one such, holding a long staff with a silver knob or handle, resembling that of the drum-major of one of our English regiments.

The observant traveller cannot fail to be impressed with the difference in the manner of the railway officials at the stations in France and Germany. The French railway guard or porter exhibits all the characteristics of his race. He is polite, suave, gracious. When the train is about to start he makes a polite appeal to the passengers to take their seats, somewhat in this wise: "Ladies and gentlemen, take your seats; take your seats, ladies and gentlemen, the train is about to leave." On the other hand, no sooner is the frontier crossed than a different and more peremptory salutation is heard. "The time for starting has arrived. Get in!" shouts the guard, with an abruptness that is startling. There is a rush for the carriages. "Ready!" he cries. The bell rings, the whistle sounds, and away goes the train. There is a bell at every station, without exception, which rings the exit of every train; and in Germany there is an evident and somewhat unpleasant military precision in the abrupt orders that are issued and the regularity that marks the arrivals and departures.

As an engineer I observed that the station roofs, both in France and Germany, are higher and lighter in construction than ours, the cast-iron columns supporting them remarkably so. The traffic on the Continental lines is comparatively light, and the rails and rolling-stock, especially in the goods department, are also light as compared with those of our English lines.

The country from Strasbourg is very fine, the uplands on each side of the valley being wooded or cultivated as far as the eye can reach. The extent to which the cultivation of the land is carried in Baden, Wurtemberg, and Bavaria is something wonderful. For miles on miles it is laid out in plots, from an acre upwards, narrow, but of great length, yielding produce in

the greatest variety and abundance. The fields generally are not separated by hedges or fences of any kind, and yet the lines of cultivation and ownership are perfectly distinct and regular. Drainage and irrigation are rigidly attended to. As we bowl along I see frequent silver streaks of water threading the fields, and men with a long scoop employed in whisking it over the land. Women are largely engaged in agricultural work. They are quite as numerous in the fields as the men. The few cattle I observed in Germany are domesticated-looking, and owing to their clean and tidy appearance suggest the idea of their being kept for ornament. No doubt the absence of smoke and the clear atmosphere tend to convey this impression. It is not at all uncommon to see odd sheep being led along the highways by a ribbon. Bullocks are universally employed as beasts of burden, and in ploughing. They have an educated, intelligent air about their faces, not at all like our barbarian herds. My impression is that animals generally are well treated and cared for on the Continent. It impressed me forcibly, also, that the most is made of brain in Germany and the neighbouring States—in fact, it is evident that brain is used to save muscle to a surprising extent.

The country is much wooded in Wurtemberg and Bavaria. In many parts there are immense and fine forests, chiefly of pine, yielding splendid long poles, calculated to rouse the envy of any building contractor coming this way. Nearly all the roads are thickly planted on each side with tall poplars, which have a pleasant and graceful effect, and afford welcome shade during the summer heat. The country houses are clumsy and picturesque, and comfortable enough looking, with but few and in many cases no chimneys. The church, with its steeple surmounted by a balloon or pear-shaped belfry, is the most conspicuous object in every village that we passed on our route.

Having crossed the Rhine, obtaining a magnificent view up and down the river, we were now in Wurtemberg, and passing through the valley of the Nesenbach—a lovely valley, park-like and picturesque—we soon reached Stuttgart, the capital town, an attractive-looking place as viewed from the railway. Further on we struck the Danube, which forms the boundary between Wurtemberg and Bavaria, and, crossing the river, we were now in the latter country. This, like the rest of what is now the German Empire, is highly cultivated and well wooded, though on approaching Munich there is a considerable tract of peat land. Munich, the capital of Bavaria, well-known as one of the most elevated cities in Europe, being 1,600 feet above sea level, was next reached. This is a large and noble town, with immense blocks of houses five and six stories high. There is plenty of room for further extension, as it is surrounded on every side by a vast expanse of open level country.

Hastening along, we are now in Austrian territory. Here, on the borders, are low-lying lands and wide overflowing rivers. A speedy improvement, however, was soon visible in the course of our journey, as was evidenced by the careful cultivation on every side, with occasional fir plantations. The soil between Munich and Vienna is gravelly and somewhat rough in appearance. There is considerable grazing land also, with flocks of sheep tended each by a shepherd to prevent their straying. As there are no fences, women are usually employed in this capacity, bare-legged, and wearing a kind of wooden shoes. I am not familiar with the breeds of sheep, but I noticed that the sheep have longer legs, and consequently longer necks, than ours. At all the level crossings, which are numerous, the guards or attendants—and, by the way, women are often employed in this capacity—were standing at attention, with shouldered flag, as the train passed, suggestive of the military precision that is a characteristic of the country. Tobacco smoking is almost universal in Germany and Austria. In the latter country, especially, I observed workmen smoking long unwieldy curved pipes whilst following their occupation. In one instance I actually saw a platelayer on the line smoking one such pipe whilst fixing and levelling the rails! This surprised me, I confess, considering the care which is supposed to be bestowed in the management and supervision of the railways in both countries. We reached Vienna on Monday night at 10-30—too late, of course, to view the city. On the home journey, however, we stopped at Vienna in the daytime, and, having an hour at our disposal, I, in company with Mr. George Kynock, M.P., with whom I travelled on my return, took a carriage and drove round the principal streets of the capital. It is difficult to convey an idea of the beauty and magnificence of this city, with its imposing public buildings of every kind—their extraordinary size, and the rich variety in the style of architecture. Truly we have something yet to learn in this respect, and it behoves us to speak with bated breath in presence of the noble architectural monuments of our European neighbours—light and airy and elegant, yet conveying the impression of strength and durability. No doubt the light and comparatively pure atmosphere deals gently by them, and helps to produce the effect of surprise and wonder that seizes the stranger on a first view.

But we have resumed our journey, and are now in Hungary, the second half of the twin empire, with “Home Rule” as the bond of union that enables them, hand in hand, to live in peace and harmony.

Hungary, for a large part, is a flat corn-growing country, somewhat uninteresting from the point of view of the picturesque, but a gladdening sight to the eyes of the farmer, with not much fine scenery in the northern part, though in the south there is

variety and beauty enough. All the rivers, I observe, are muddy or clayey in appearance. Whether this is their usual colour, or is due to recent rains, I cannot say. I notice in the grazing fields the fine breed of horses, with their long tails nearly touching the ground. Evidently the people are proud of them.

At this point in our journey we encountered the inevitable English bully traveller, with plenty of money and oceans of assurance. He joined the train at Buda-Pesth, and, as I learnt, was on his way to Hercules, a noted and fashionable resort in South Hungary, to drink or bathe in the sulphur waters of that place, which are said to cure gout and kindred disorders. He was talkative and inquisitive, and ready at a moment's notice to pronounce a dogmatic opinion on any and every subject that was broached in conversation. But his distinguishing characteristic was the evident pleasure he took in bullying the attendants in his broken German and French. Indeed, in the course of conversation, he confided to me, with a knowing wink, that the only way to secure attention and comfort in travelling on the Continent was by scowling at the officials on every possible opportunity. I ventured to differ with him in that opinion, with the consequence that, without attempting to argue the point, he directed his conversation to the other occupants of the smoking room and thenceforward ignored my presence altogether, at which I was by no means inconsolable. Here the train has slackened speed—we are approaching a town. "The town of Temesvar," grumped our bully friend in the corner, to show his familiarity with the country. "Temesvar," chimed in a Greek passenger on the opposite side of the car, giving the *e* the English sound of *a*, which correction terribly enraged the other. He stormed and swore that his was the proper pronunciation of the name, and ridiculed the idea of his accepting the correction of a mere Greek. At length he relapsed into a surly silence, and was dumb during the remainder of the journey. At Hercules he got out, and, as John Bunyan would have said, "We saw him no more." Let us hope that he was too much of an exception to be classed as a fair sample of the travelled Englishman.

We had a splendid view of the Danube on passing the frontier of Hungary and Roumania—noble river, the Danube. The scenery at this point, Vercherova, is delightful. The broad river, the blue—very blue—sky, and the different shades of green—very green—fields. I saw here, for the first time, a Roumanian peasant in full costume—a fine, big, bulky, and not unhandsome fellow, suggesting a cross between a huge Russian and a native of Connaught, with his legs encased in wrappings instead of stockings, a grey blouse or jacket, with a blue undergarment reaching down to below the knee, the whole surmounted

by a hat resembling an extended concertina or a Chinese lantern. He seemed honest and inoffensive like all his race. Indeed, amongst all the peasants throughout these countries—Hungary, Roumania, Bulgaria—one cannot but feel that “sufferance is the badge of all their tribe.” As a rule I found them poor and thinly clad, but possibly the thin dress was appropriate to the season of the year, the weather being warm. Here, as in other parts, were flocks of sheep and herds of cattle, tended by women, and all, without exception, spinning wool on the distaff. One thing is abundantly evident, the women work in those countries. I observed also that many of the women in those parts resemble Turkish women, having their faces partially covered with the yashmak or veil, and dressing in white and red garments.

The land in Roumania is not as well cultivated as that in Hungary, being more used for grazing purposes, and, consequently, there is a greater abundance of cattle. The country on our route was hilly and undulating, having in many parts the appearance of some of our English counties. A vast quantity of maize is grown here, as well as in Hungary, Roumelia, and Bulgaria, alcohol being largely distilled from it. It is somewhat tiresome travelling through these eternal never-ending maize fields. Many of the fields are bordered with sunflowers, these being cultivated not for ornament but for the delicate and valuable oil obtained from them, and which is chiefly used in lubricating the works of watches and clocks.

At this point, the Carpathian Mountains to the left are very fine, apparently 3,000 to 5,000 feet high, the clouds rolling majestically along their sides, the ridges bathed in sunlight. We reached Bukharest, the capital of Roumania—“The City of Pleasure,” as it is called, though why my experience does not enlighten me—on Tuesday night, or rather Wednesday morning, at 12-20, and stayed here till 5 o’clock, arriving at Giurgevo, on the banks of the Danube, at 7-15. Here we left our sleeping train, and embarked on board a small steamer going up the river a distance of four or five miles to Rustchuk, in Bulgaria, on the opposite bank. Here we saw the point where the Russians crossed the Danube at the time of the war, a feat which would have been quite impossible in the face of a vigilant enemy. Indeed, it was afterwards proved that bribery more than strategy assisted the invading army. I should say that the Danube is fully one-and-a-half mile wide between Giurgevo and Rustchuk. The grapes here, sold by the peasant men and women, are simply delicious, and as large as the largest gooseberries—cheap, too, about 3d. per lb. Nothing that I have ever seen elsewhere can be compared with them for richness of flavour—they are simply big blobs of luscious wine.

On leaving Rustchuk at 9 o'clock in the morning, the Bulgarian soldiers, both infantry and cavalry, were drilling on the banks of the Danube as we passed along. Their dress is a kind of grey woollen cloth, with blouse or long jacket and belt round the waist. They are fairly well-built and active fellows. The remains were visible of various earthworks thrown up by the Turks in the late war with the Russians.

The first-class carriages in Bulgaria are neat, commodious, and comfortable—the seats and backs lined with rich crimson velvet, and the windows hung with cream-coloured blinds of wool or alpaca cloth, all bright, airy, and elegant. The guard, as is also the custom in France, walked along the footboard, which does not appear to be wider than those of our English carriages, and collected the tickets whilst the train was going at a speed of about twenty miles an hour.

There is plenty of room for expansion in Bulgaria. The land seems to be yearning for cultivation, the soil being evidently rich and fruitful, with many flowers among the grass, and trees dotted all over the fields, as in a park, as far as the eye can reach. The climate is delightfully warm, not too hot, but kindly and comfortable. What a grand country for colonising with British emigrants! Picturesque Turks, with coloured dress and white turban, are seen sitting cross-legged by the side of lumbering wagons, eating a frugal meal of bread and fruit. Snow-white, spotless, houses in the distance on the horizon, with bright-red tiled roofs. Now we are passing a village lying on the sunny side, facing the south, of a wide expansive hill. Our first stop is at Vetova, where there is a good deal of scrub land that would be improved by clearing. I observe that there are more fences in Bulgaria than in other parts of our journey. Away we go again, and I notice a Turk standing, looking with undemonstrative gaze at the passing train. Whether he is viewing it with envy or contempt it would be difficult to say. There is nothing in his inexpressive face to enable you to analyse his feelings, for—

“The face of Mussulman
Not oft betrays to passers-by
The mind within.”

Here are fields of maize, with bright-yellow melons growing at the roots, the colours pleasant by contrast.

We had now reached Rasgrad, and having ten minutes to spare, I went and viewed the battle-field where Mehmed Ali Pasha, as commander-in-chief, and Baker Pasha, as general of cavalry, defeated the Russians during the war of 1877. On my return, passing along the platform at the railway station, I observed in one of the compartments of the train set apart for ladies, a Turkish woman unveiled, but seeing me looking curiously in her direction, she quickly covered her face, as though

she thought the "evil eye" had been upon her! Fortunately for your humble servant, the danger to the beholder of a fugitive glance of this kind is not as great as in the times of which the poet wrote when he says—

"Woe to the head whose eye beheld
My child Zuleika's face unveil'd!"

As the train sped along, I saw the labourers busy at work within ring fences, with oxen treading out the corn, their methods of agriculture as primitive as in the days of the Pharaohs. Cultivation and farming generally are of the most primitive description. The ploughs, so far as I could judge, are of wood. At intervals I observed curious old draw-wells, having a long pole for a lever, with a rope and bucket suspended at the end of it.

I got my first view here of a Turkish burial ground, a weird, neglected-looking place, thickly studded with tall cypress trees—a perfect forest of cypress trees—with the gravestones invariably one at the head and one at the foot of each grave; tall narrow stones, covered with inscriptions, and crowned with carved fezes and turbans, showing the rank in life of "the poor inhabitant below." The inscriptions, I am told, are not the names of the dead, neither do they recount their virtues, but are prayers or passages from the Koran.

Turks are numerous as we pass along, mostly cross-legged or sitting on their hunkers, resting like Swinton colliers. The train stopped next at a place named "Sheytin Dyck," which being interpreted means "The little devil," so my travelling companion informed me. Here we lunched—a most excellent lunch, and we were hungry to boot—quite a variety in the *menu*: soup, stewed steak, fowl of various kinds, with good wines and Bavarian beer.

Soon we entered the Shumla Pass. I judged it to be about fourteen miles long, with the wild, mis-shapen, brigandish-looking Balkan hills, or a spur of the Balkans, on either side, and occasional valleys branching from the main pass, and stretching away in the distance. Emerging from the pass I observed dense flocks of birds, about the size of sparrows, rising from the low grounds. Pravady was our next stop. The word means "Truth"—hence probity, I presume. More Turkish cemeteries as we hasten along, but with the stones broken off about a foot or eighteen inches from the ground, the work, as was explained to me, of the Bulgarians, who, to desecrate the Turkish graves, broke all the tombstones during the war. Cumbedjie was our next station. Here is a considerable and not unattractive village, with a large and handsome flour mill apparently at full work. We reached Varna at 4 o'clock on the afternoon of Wednesday. This is a neat-looking seaport on the Black Sea,

with a considerable trade. The train carried us to the place of embarkation, about half a mile further on, and, waiting the arrival of the express, the *Aurora*, a steam vessel of the Austria-Hungarian Lloyds, was riding at anchor in the bay, about three-quarters of a mile out.

Our ferry-boat, which was large and took all the passengers, Turks, Greeks, Jews, Franks, and English, with their baggage, was manned by six sailors, and we were all safe on board the vessel at 5-15, when she immediately sailed for Constantinople. It was a delicious afternoon, with a slight breeze, altogether pleasant. So far I was at a loss to account for the epithet "Black," as applied to this sea. It is here a magnificent blue. Later on, after about an hour's sail, I began to appreciate the appropriateness of the name, the Black Sea. Here indeed—

"The purple of ocean is deepest in dye."

It was now an inky blue or purple black, yet transparent enough, reflecting the crescent moon sloping towards the western horizon. Tired though I was with my long railway ride, I turned into bed reluctantly at 11-30, after enjoying the wonderful sight of the stars as they are to be seen in that latitude. The Milky Way, in double lines in parts of its length, was like a fleecy cloud spanning the arch of heaven, and might easily be mistaken for a cloud if it were not for its unchangeable position.

I was up in the morning betimes with high expectation, and at 5-15 o'clock we entered the Bosphorus. The first view of this magnificent strait is never to be forgotten. The sight is captivating beyond description. No description, indeed, can do justice to it. Nature and art have combined to lend every charm to the scene. The rocky coast-line, rugged and irregular, clothed with slight herbage of every shade and colour, dark and light green, rich and luscious brown, dusky in parts like the face of a mulatto; rose pink on the bright hill side, "upheaved and soft as maiden's breast;" and in the hollows the blackness of the shadows cast by the rising sun are as gorgeous as the golden-tinted uplands. Here are forts in profusion on both sides of the strait, which at its narrowest part is about two-thirds of a mile in width. Some of the military works are dismantled, crumbling, and ruinous, but most of them bristling with life and cannon.

Nearing the city, the *caïques* and small boats of all kinds are numerous, manned by Turkish and Greek sailors, wearing spotless white jackets with blue collars, and all with the red *fez* on their heads; yachts, with lazy white sails, idly creeping along the shore; sentries' cabins and soldiers' white tents on the brow of the rocky hills behind the forts and earthworks, and behind them again tall trees shaped like the feather on the helmet of a dragon; white houses, with vermilion roofs, sur-

rounded by enclosed gardens and vineyards. The palace of the British embassy is prominent and presuming at Bujukdere. The blue sky and the bluer water, and the delicious, satisfying air are altogether enchanting. The light and gaily-painted caiques are more numerous than ever, and heavily-laden barges, manned by Turks or Arabs, are toiling slowly towards the harbour. The engines of the steamer have slackened speed, and we are leisurely approaching the more populated parts, the suburbs of Constantinople, where most of the grandees live, and here are palatial residences and grotto-like gardens on both sides, the European on the right, the Asiatic on the left. Still more earthworks, and forts, and ramparts, with mounted and threatening cannon, guarded by sentries with bayoneted rifles twinkling in the sunlight. The mosques, with their tall minarets piercing the clear air, are now numerous, and the long line of royal marble palaces, with their golden gates, stretching along the European side, are something to wonder at, and—well, scarcely to admire, all things considered.

We anchored in the Golden Horn, opposite Constantinople, at 7-30 on the morning of Thursday, the 25th August, exactly four days from leaving Victoria Station, London. We got ashore from the vessel in a small boat, being stopped at the quay side until our luggage was overhauled and our passports examined. When within twenty yards of the landing-place on the quay at Galata, I felt sadly and suddenly disillusioned. The effect on my senses and upon my imagination was startling and complete. The beatific glamour which comparative distance had cast over the scene lifted like a veil, and melted into invisible space! The reality of things, as it dawned upon my mind, was disagreeable and even repulsive. I felt inclined to resent what almost seemed an imposture. The slime-covered steps, the pavement reeking with filth, and the decayed and dilapidated buildings that confronted me on the quay, took away my breath and all my sentiment at the same time. Our luggage being taken charge of by porters from the hotel, left us at liberty to wander leisurely up the street leading to that part of the city where we had arranged to stay, viz., Pera, the best part or "west end" of the city, where is situated the Hotel de Byzance.

Constantinople really comprises, as its different divisions, Stamboul on one side of the Golden Horn, Galata and Pera on the other, and Scutari across the Bosphorus on the Asiatic side. The Horn is spanned by two floating bridges. The only communication with Scutari is by boat. One of the first things that strikes and surprises the traveller after landing is the innumerable lazy and dirty dogs that haunt the streets, on the lookout for the garbage thrown from the shops and dwelling-houses on each side of the narrow ways. The dogs are ownerless and homeless, living in the streets day and night, summer and winter

through. At first a feeling akin to horror seizes the stranger, as he fears he may be in danger of a snap at his legs by the hungry curs that abound on every side, and especially does he dread this as he toils along under the scorching sun, conjuring up visions of hydrophobia and its horrors. He soon learns, however, that his fears are unnecessary: the dogs are harmless. They are not, or but rarely, subject to the dread disease—the heat and dirt and lack of water notwithstanding—though, as I afterwards found, the dogs know to go to the public fountains to drink. Here an attendant places a large basin of water for them to partake at pleasure. The number of these dogs, as I understand, is much reduced as compared with what it was a few years ago. There are still thousands, however, whereas formerly they existed in tens of thousands. Basketfuls of the sweepings of shops and other tenements are brought out and emptied into the streets daily, and the dogs in the particular vicinity come up to the heap and pick out whatever garbage suits their palate, which is by no means fastidious—pieces of flesh meat, bones, crusts of bread, and even fruit, if nothing more attractive offers. They snarl and snap at each other at times, but, as a rule, they do not object to a mate sharing a portion of their findings. When they have gorged themselves to the full, or when nothing more in the way of provender presents itself, they lie down in the dust, or dirt, or mud, in the middle of the road, on the side path, or in the gutter, which is their favourite lounge, and sleep a kind of wakeful sleep, ready on the approach of a carriage or bullock wagon to slink up and stand out of the way till it passes, then down again. The Turks, except by special edict, will not kill one of these dogs—it is contrary to their religion to do so. No Turk, be his station high or low, but will go out of his way rather than incommode one of these creatures.

The most extraordinary stories are told of the ways and habits of the dogs of Constantinople. I cannot vouch for the absolute truth of these, but I strongly incline to believe them. It is said, for example, that the different bands have each their allotted streets or districts in the city. If one dog of a particular set should chance to infringe upon the district of another set, the latter immediately rush upon the intruder, and, unless he can escape out of their clutches, tear him to pieces. It is amusing how the straggler will run to escape his pursuers, turning neither to right nor left until he reaches the frontier of his own locality. No sooner does he succeed in this than he wheels boldly round, stands at bay, showing his fangs, and snarling out his contempt for his pursuers, threatening vengeance on them if they in their turn attempt to cross the dividing line. If the vagrant happen to belong to the female sex, she is less summarily dealt with, but the leader of the dogs in the district

into which she has strayed, conducts or escorts her to the frontier, snarling angrily if she lags or hesitates in her progress, but without in any way maltreating her. I saw several of the bitches with litters of four and six pups—one, especially, had a not unhandsome offspring, which she was evidently proud of, and initiating them into her own line of business in the streets. It has been asserted by travellers that the dogs make night hideous with their howling and barking. In justice to the brutes I must say that I cannot confirm this aspersion. The nights were, on the whole, as undemonstrative and still as our own at home. At the time when their numbers were greater, it is likely the brutes did howl for want of food, but now that the number of them is reduced they are not, as before, on the verge of starvation. I noticed one peculiarity in the noise they occasionally make. Suddenly a whole gang will begin barking in chorus. This will continue for the space of a minute, and just as suddenly they will cease each at one and the same instant. Not a single cur ever attempts to prolong the outcry. Most of the streets of Constantinople are narrow and irregular—very steep many of them—the city, like all Turkish towns, being built on an acclivity, and execrably paved and kept. One would at first suppose them to be utterly impassable by a vehicle, but it is scarcely so. It is, indeed, extraordinary to see how these are driven through them—jolt! jolt! jolt! appearing at every moment as though they would lurch over and deposit their occupants in the gutter. The pedlars, peripatetic merchants of all kinds, carriers, and beggars in the streets are innumerable. All is life, noise, bustle, and excitement from early morning to sunset. To a new-comer the confusion is absolutely bewildering; and what with the variety of costumes, the red fezes, white and green turbans, and white, red, and blue dresses, women (not Turkish) plying their fans as they go along, the scene is animated and picturesque to a degree. The air is alive with cries of every kind and in every key, from the rich musical note of the muezzin, high up on the terrace of the minaret, to the screaming, howling, and grunting of fruit sellers, bread sellers, water vendors, bullock drivers, and others *ad infinitum*.

Groups of Turks are always to be seen sitting cross-legged in front of the coffee taverns and cafés, leisurely smoking tumbaki through their nargilhas, and apparently lost in meditation, or mooning the precious hours away in somnolent indolence. Artisans of every description—shoemakers, tailors, coopers, tin-smiths—are plying their several trades in front of their shops. Money-changers, with coins of every country, in glass cases, are sitting at their doors waiting for customers. Bullock carts and other vehicles go tearing along the narrow streets, the drivers shouting, swearing, and quarrelling. Now a pasha, with gorgeous equipage and attendants, bowls and jolts along. Then the prin-

cipal or proper wife of some grandee, cloaked and closely veiled in silks, drives past. Occasionally a whole harem of women comes along on foot, to do their shopping, all dressed in bright silks and scrupulously veiled, with the stately black eunuch in attendance, all loitering and hobbling along—for the Turkish women walk badly as a rule—and at intervals stopping to admire the display of attractive exhibits at the shop fronts.

This veiling of the women's faces is most tantalising to the observer. One cannot but wish at times to get a glimpse of the fair wearer, to see whether she is young or old, pretty or the reverse, intelligent or otherwise. By rare chance you catch a glimpse of a pretty mouth, but the sight is only momentary, for the vagrant covering is quickly replaced and the eclipse is complete. I was assured that this absurd and wretched, not to say unwholesome, practice of veiling is not so much resorted to or relished by the ladies of their own free will, but at the desire of their lords and masters. When saluting a Turk you never inquire as to the health of his wife and daughters. That would be an inexcusable breach, not only of good manners but of morality. You are not supposed to have present in your mind the idea of his wife or wives and children. If you had, it would be assumed that you had also sinister motives in making the inquiries. The insult would scarcely be forgiven. Be careful, therefore, when you are in Turkey, and inclined to be complimentary to a son of the soil, that your sympathetic inquiries and wishes are strictly confined to the person of the gentleman whom you are addressing! The Turkish dwellings may always be recognised by their barred and latticed windows—prison-like and dismal—as though to prevent curious eyes from peering either in or out. Those of the people of other nationalities, such as Greeks, Armenians, and Jews, have ordinary glazed windows.

The manners of the true Turk, as a rule, are mild, gentle, and courteous. This is especially the case with those in country places. In the larger towns he loses, to some extent, his unsophisticated character by contact with the people of other nationalities, and amongst the poorer classes, in the struggle for a living. Both rich and poor, they are generally fine, stalwart fellows, good-looking, intelligent, and with open honest faces. With all his mildness of exterior, however, whether natural or assumed, the present-day Turk comes of a warlike, war-loving, and conquering race. He is no trader—he despises trade—hence the decadence of the nation, and the gradual, or rather precipitate, ruin that is surely overtaking it. A large portion of Constantinople to-day is in ruin. The palaces of the Sultan and his family, the mansions of the grandees, and the quarters of the soldiers, are all lavishly upheld; but the other governmental and municipal buildings are decayed and dilapidated,

and town improvements, drainage, water and gas supply, and even railways—unless owned by a foreign company—are neglected and uncared-for.

No doubt Turkey is in an unfortunate position, the sport of the more powerful nationalities, who use her as a pawn on the great European chessboard; or, employing a more familiar form of speech, she is “banged about from pillar to post;” and being both weak and poor, the grandees and rulers of the country under the Sultan have become learned in the arts of deceit and duplicity, to compensate for the lack of power to retaliate. Not that Turkey, under better conditions, need be poor. She possesses about the most glorious climate in the world, genial and healthy, with a teeming soil, yielding in abundance of the fruits of the earth; rich in mineral wealth, and, by virtue of her geographical situation, the very key to the two great continents of the eastern hemisphere.

On every hand it is admitted that the private character of his Majesty the Sultan is beyond reproach. Than his there is no more kindly and sympathetic heart within the wide dominions over which his sway extends. The manifestation of his desire for the welfare of his subjects is not confined to mere words, for he is a beneficent contributor from his privy purse to every benevolent object; and whenever there is distress through accident or misfortune, such, when brought under his notice, is promptly relieved from his own private means.

It is unnecessary for me to attempt a description of the sights of Constantinople. Are not the chronicles written in the books of every traveller from Mark Twain backwards and forwards? The towers of Galata and Stamboul; the grand mosques of Suleiman, and of St. Sophia, once a Christian church, with its porphyry and jasper columns, brought 1,500 years ago from the Temple of Diana at Ephesus—the seven towers and the ancient walls—all of these the relics of a power that flourished here anterior to the advent of the Turk. The interested traveller will visit all these. He will also be led by curiosity to take a run down to the church of Baloukli, where in a pool are kept the miraculous fishes, once half broiled, yet still alive, and over eight hundred years old. He will spend a day in the bazaars at Stamboul and admire, and perhaps purchase, some of the treasures of the East that are there displayed; and he will not fail to pay a visit to Scutari, to view the grand hospital over which Florence Nightingale threw the mantle of her benign womanly presence during the dark days of the Crimean war, and the English Cemetery close by, where lie buried so many of Britain's bravest sons. He will take a look at the dancing and howling dervishes, the effigies of the murdered Janissaries, the subterranean cisterns of Stamboul, the sweet waters of Europe, at the upper end of the Golden Horn, Leander's Tower, opposite

Seutari; and he will listen with rapt attention to the muezzin as, from the gallery round the outside of the minaret, he calls the faithful to prayer, "Allah, Aekbar, Ca-illah-illah-la, Ashou-danah, Mahomet-a-reseul, Allah Hu!" (There is no God but God, and Mahomet is His prophet!)

There is a mellowness and rich melodiousness about the Turkish language which is obvious to even the superficial observer. Many of its words have a resonant sound as full and satisfying to the ear as a draught of generous wine to the palate. I don't know whether there are any orators amongst Turkish statesmen—probably they prefer to cultivate a self-denying reticence, as being the safer virtue under an irresponsible despotism accustomed to be swift and sudden in its methods of silencing objectionable innovators; but the language surely lends itself to the apt and vivid expression of brilliant ideas and noble thoughts. What a grand experience it would be to listen to a Turkish patriot haranguing an audience under the dome of St. Sophia, or in the Suleiman Mosque of old Stamboul! Friday is the Turk's Sabbath, and on Friday, the 26th August, I witnessed the Salamlik—that is, the grand ceremony of the Sultan going to prayers in the mosque. The soldiers were paraded, and they marched and counter-marched between the gates of the palace and the Grand Mosque. The guard of the palace regiment, all the men wearing green turbans, was especially prominent. Bands played and banners waved, and quite an extraordinary occasion was made of the affair. The great band of the marines was there, consisting of 84 performers, and said to be without exception the first military band in the world.

Having good letters of introduction, I was, with a few others, admitted to a room of the palace facing the mosque, and from a window in the first floor I had an excellent view of all the personages in the royal procession. First came the mounted heralds, announcing the approach of the royal personages. Shortly after these appeared a gorgeous carriage, in which was seated, alone, the Valide—the mother of the Sultan, not visible, of course, excepting her clothing, for she was draped in silks from head to foot. After an interval of five minutes came the Sultana—the wife of the Sultan—also seated in her carriage alone, and draped in coloured silks, with a bodyguard of mounted soldiers, and closely attended by the chief of the eunuchs of the harem on horseback—a well-dressed and dignified-looking personage, as black as ebony. Next came the younger brother of the Sultan, with his military attendants. At a long interval, of at least twenty minutes, came the Sultan, Abdul Hamid, with Osman and Namick Pashas, the three seated in an open carriage, the Sultan with his face, and his two attendant officers with their backs, to the horse. A whole suite of mounted officers crowded round the carriage.

I was seated with a friend near to the open window, and, as I have said, had a good view of all that passed. No thanks, however, to a certain busy official there, who, on the approach of the Sultan, unceremoniously came and put down the window, and even pulled down the blind. After he had gone I raised this a little, and was intent on my observations, when it was again somewhat rudely pulled down by this military-looking personage, who muttered something I did not understand, but which, to my uneducated ears, had the familiar sound of "Cock-a-leekie." But cock-a-leekie or not cock-a-leekie, I was not to be baulked, and no sooner had he departed to attend to the closing of the other windows and blinds, than I again pulled mine up a little. Just then the Sultan's carriage appeared, and I had an excellent view of his majesty. He is a spare, gentlemanly-looking man, somewhat effeminate in appearance, notwithstanding his cognomen of "Hanet, or Hamid, the Strong," and not at all coming up to my idea of the despotic ruler which he is in reality. He is the very image of his father Midged, whose portrait I saw in the house of Ragheb Bey, his majesty's favourite chamberlain, and to whom I was introduced, and with whom I had the honour of taking coffee on the morning of the same day.

Whilst in Constantinople I saw most of the famous pashas, and was introduced to some of them. Amongst others to Dervish Pasha, conqueror of the Montenegrins; Raof Pasha, the commandant of Constantinople; Menas Effendi, sketchist to his majesty; Woods Pasha, an Englishman, rear admiral of the Turkish fleet; and Borthwick Pasha, chief of the constabulary of the capital, also an Englishman, and brother of Sir Algernon Borthwick, M.P., the proprietor of the *Morning Post*.

During my stay in Constantinople (which lasted ten days altogether, including the time spent there on my return from Salonica) I spent a delightful evening on the waters of the Bosphorus in company with Sir Alfred Kirby, sheriff of London. After sunset we hired a caïque, manned by two Greek sailors, and crossed leisurely over to Scutari and back again. The beauty and magnificence of the scene was such as I shall never forget. The grand dome of the heavens, with its myriad bright stars overarching the tripartite city—Stamboul, Galata, with Pera, and Scutari, whose twinkling lights, mingled with the light of the stars and reflected by the water—made it seem as though we were suspended in the centre of a hollow illuminated sphere. The balmy eastern air, the sounds of the city subdued and mellowed by distance, the measured plash of the oars in the hands of the picturesque rowers, and the lapping of the placid waters on the sides of our frail skiff, all combined to awaken in my imagination the fairy dreams of Eastern story and romance. The gorgeous sunsets of the Levant and the

experience of that evening on the waters of the Bosphorus haunt my memory like a pleasant dream.

Leaving Constantinople on Friday, the 26th August, we went on board the *Messageries Maritimes* steamship *Kopernic*, lying in the Golden Horn. Our vessel rounded the Seraglio Point at four o'clock in the afternoon, bound for Salonica. The sail through the Sea of Marmora occupied the whole night, and next morning we called at Tchanaca, in the Dardanelles, where we stayed four hours. This strait is equally as wonderful as the Bosphorus, and though lacking in palaces and population is of great beauty and interest. The Dardanelles bristles with earthworks and forts of enormous extent and strength. Perhaps it would be utterly impossible for any single vessel—even the strongest ironclad—to force its way through the straits, if it were intended to prevent its passage. Certainly, out of twenty that might attempt to run the gauntlet under such circumstances, from 50 to 75 per cent of them would be sunk or disabled. These extensive and costly military works, with the large daily expense of their maintenance, help to further impoverish the already impecunious Turk. It was at this point, Tchanaca, where Lord Byron swam across the Hellespont. The width from shore to shore is about a mile, but swimming, to take advantage of the current, the distance traversed must have been at least three miles.

On the afternoon of Saturday we entered the *Ægean* Sea, in magnificent weather. At night, with half moon, it was light enough to enable me to read the time by my watch. The stars were like diamonds, and the sea an exquisite transparent blue. We shortly passed the islands Imbros, Thasos, and many others. At the port of Lagos, which we reached at 7-30 on Sunday morning, the colour of the sea changed to a light pea-green.

Nearly all the sailors at these different ports are Greeks. Splendid seamen; daring, cheerful, active, intelligent, hard working, and willing to work; by no means lazy or indolent, except when there is nothing for them to do. This part of the country, indeed, only needs good and patriotic men at the helm of affairs to make it prosperous and strong.

We arrived at the port of Cavala at two o'clock on Sunday afternoon. This town is the ancient city of Neapolis. It is famed for its fine brand of tobacco, considered to be the best in the world. There we went ashore, and called on a Greek friend, who received us hospitably, and took us round to view the lions of the place, which contains from six to eight thousand inhabitants. We paid a visit to a large building built by Mehemet Ali, who was born at Cavala. This consists of numerous dormitories, with cloisters, for the accommodation of poor priests, and is maintained by the Egyptian Government. Food is distributed from its door to the poor every Thursday, the eve of the

Turkish Sabbath. In the course of our ramble, in passing a small plantation in the outskirts of the town, I heard, clear and distinct, overhead the note of the cuckoo. The sound came upon my ear like the voice of an old friend in a strange country. My steps were suddenly arrested, and for the moment I was uncertain as to my whereabouts. Did my ears deceive me? No, for there again, and again, are the familiar sounds! They were, however, slightly different to the notes of the bird in England. In the first place, they were louder and more flute-like. Probably that was due to the nearness of the bird and the light pure atmosphere of that region. Again, in the Turkish town, the bird invariably uttered three notes—*cu, cu, coo*, the last being pitched in the higher key, instead of in the lower as in England. True, I have observed that here, as at home, towards the end of the season, in June, the note of the bird changes, its call being frequently in three notes, and less certain in its sound.

At four p.m. we set sail from Cavala, the sky wearing a stormy, unsettled appearance, and the wind rising, betokening a rough night. At seven p.m. we passed close to Mount Athos. This is a remarkable place, containing a number of monasteries of great wealth, especially several Russian establishments of that class. No human being or animal of the female sex is allowed to live in this place. These are all rigidly and rigorously excluded. *It is a holy place.* They are all holy people here!

At 8-30 the wind had risen to a storm, the waves rising mountains high, and the vessel buffeted terribly. It weathered the storm magnificently, however, and I, feeling uncomfortable with the *mal de mer*, crept off to bed in my berth in the cabin. Next morning, at 7 o'clock, I turned out and got on deck just as we were passing Mount Olympus—the mountain of the gods—which rose proudly and grandly from the shore, stretching Greece-ward. Gaze as I might, I could not catch a glimpse of Jupiter, but I saw his mighty throne high up near the summit, and I could trace the steep declivity down which the swift-footed Mercury was wont to run to execute his errands—and that at least is something to think of and wonder about. Here is the very hill on which Homer, before he became blind, must have gazed a thousand times! and of which he sung, and yet sings, in undying strains: his theme the great mortals and immortals of a wondrous past. We were now nearing our journey's end, for on the morning of Monday, the 29th August, at 10 o'clock, we cast anchor in the gulf before the town of Salonica, the most important commercial town, after Constantinople, in European Turkey.

In the course of my travels I was on board four different steamers—the Austria-Hungarian Lloyds from Varna to Constantinople; a Messageries from Constantinople to Salonica,

a Marseilles steamer from Salonica to Smyrna, and an Italian from Smyrna back to Constantinople, and in each of these vessels were large numbers of Turks, travelling either alone or with their wives and families. As a rule they were deck passengers—certainly they never honoured the cabin table with their presence—and I had every opportunity of observing their peculiar manners and customs. They are a sedate and thoughtful-looking race, never indulging in loud laughter, though cheerful enough as they sat in groups after a frugal meal, cross-legged, smoking and conversing. Their meals consisted invariably of fruit, principally grapes, and dry bread with water, of which they partook largely and with evident gusto. The women, of course, were all closely enshrouded with the yashmâk, gashmuck, or veil, no part of their faces being visible except the eyes. I was curious to see how they would demean themselves in eating, and I confess to experiencing a feeling of annoyance and disgust come over me as they all turned their faces to the bulwarks of the vessel, against which they crept as close as possible, while, with their heads inclined, they partook of their meal of bread and fruit. The children, like their mothers, are shy and retiring—that is to be expected from the habits of the people. They can have no training, in the true sense of the word, under the conditions of the lives of their mothers. The children's nails and the palms of their hands are stained with a reddish-brown dye called "henna," by way of ornamentation, and to add to their beauty, as is supposed. Some of the women's finger nails I also observed were similarly dyed. It is a rare thing, however, to get a sight of their hands, as they keep them scrupulously gloved, as a rule.

At regular intervals the more religiously-inclined Turks performed their devotions seemingly oblivious of the presence of the other passengers aboard the vessel. Near to the place where I happened to be standing, a grave, intelligent-looking follower of Mahomet came and spread his cloak on the deck, and on his knees, with his face turned towards Mecca, went through his devotions, his hands brought together—not clasped—and his lips moving in silent prayer; then he slowly bent his body till his forehead touched the deck. This movement he repeated again and again during a space of at least twenty minutes, when he rose, put on his cloak, and walked leisurely away.

A theological discussion took place on board ship amongst the company of Greeks, Jews, and Bulgarians—the Turks holding themselves aloof—which, as is usual in religious and political discussions, stirred up a good deal of feeling amongst the disputants. One of the passengers produced a modern Greek Testament, from which he quoted at length. The discussion was carried on in Greek, which I did not understand, but I

could not but observe the supercilious and self-satisfied air of the Jewish disputants in their disallowance of the claims of the founder of Christianity.

But we have now reached Salonica, the capital of Macedonia, the country of Alexander the Great and Philip his father, the ancient city of Thessalonica, to the people of which place, the Thessalonians, the Apostle Paul addressed two of his epistles. Salonica faces the south, looking straight at the noonday sun from its hillside. The most elevated part of the town is fully 1,000 feet above sea level. Like all other towns in the Ottoman Empire, it is walled round, but in this instance the city has burst its walled limits, and has spread itself out on either side beyond the walls. Considering that it is a Turkish town, it has had a remarkable growth. Before the Crimean war the population was only 70,000—now it is nearly double that figure. There is every probability that it is destined to become one of the first ports in the Mediterranean. It has a magnificent bay; it is on the direct overland route to India; and when the Servian railway, which is now completed for traffic, is opened, it will be the eastern terminus of the Trans-European system, and within three and a half days' journey from London, and the shortest and most direct route to our Indian possessions, as well as to all the other important places in the East. Two cotton-spinning mills have been established in the town, each managed by a Manchester man, on both of whom I called during my stay. These mills are working successfully, and reputed to be earning large profits, and the erection of other spinning and weaving mills is in contemplation. They have much in their favour. Cotton is grown in the country, and labour is abundant and cheap. The mill hands are principally Jewish girls, and, so far as I could judge, they were almost as expert at their work as our English factory hands.

The Turkish mosques, with their minarets, are numerous, the principal ones, like those of the capital, having been originally Christian churches. St. Sophia, dedicated to the Heavenly Wisdom, is the principal edifice of this kind, and was built by the Emperor Justinian. The pulpit from which St. Paul is said to have preached is still in existence here. This, which I saw, is hewn from a block of green marble, probably from the Vale of Tempe, and is an interesting object of antiquity, whether the legend associated with it is true or not. Eustatius, the author of "The Commentary on Homer," presided at one of the ecumenical councils at St. Sophia. Cyrilius, who invented the Slav alphabet, was an inferior deacon here, and Methodius was one of his co-workers. Saints' days are still observed in Russia, Bulgaria, and Servia, in honour of these men. The triumphal arch of Constantine, built to celebrate his victories, is still in existence, spanning one of the principal streets. It is a noble monument

of the Roman occupation of the country, and is in a remarkably good state of preservation.

There are no bells to any of the churches, or mosques, as they are called. The Turks detest the sound of a bell. The muezzin stands on the gallery or balcony which encircles the minaret, and in a loud musical voice summons the people to prayer. Even in the dwelling the bell is dispensed with, and when a servant is wanted—a man-servant, of course, for women are not employed in that capacity—he is summoned by a clap of the hands. The only instance in which anything like a bell appears to be tolerated is when it is pendant from the neck of the camel. I saw a long procession of these useful and noble animals going through the streets of Salonica, each laden with its heavy burden, and the tintinabulations of the sonorous bells suspended from their necks, as they strode patiently along, was pleasant to listen to. Curious to say, these long files of camels, to the number of fifteen to twenty in each, following one after the other, are invariably led by a donkey. As soon as the drivers or attendants have completed the lading of the beasts, the donkey moves off in front, and away the camels follow in the direction he leads. Referring to this singular custom, there is a proverb, which is used to describe the condition of the Turk. It is said that the Turk is a fine specimen of humanity, but he is, like the camel, simple enough to follow the lead of any donkey.

There is one singular custom which strikes the stranger in Turkey almost as much as anything else—that is, the practice, which is very general amongst the male inhabitants, of carrying in the hand a tesbeh or chaplet of beads. This custom is by no means confined to the Turks, for Armenians, Jews, and Greeks have them, and it is not idlers, as may be supposed, who use them most. You will see the tesbeh in the hands of busy merchants on 'change, and in passing through the streets, their fingers working the beads along the string as they count and recount them backwards and forwards. They are used much with the same object as we carry a light stick or cane in this country—for company—and as something to employ the mind and occupy the hands.

I have stated that all Turkish towns are built on an acclivity. Owing to this it is difficult and often impossible to employ carts or wagons in the carriage of materials and merchandise up the steep and tortuous streets. To do work of this kind there are large numbers of porters, or hamels as they are called. These men carry the heavy loads, as much as three hundredweight at a time, on the broad of their back, in a stooping position, with a kind of wedge-shaped leather cushion, stuffed with straw or reeds, resting on their hinder end, and kept in its position by shoulder straps. To see the poor hamels (human camels, spelt

with an h) toiling up the steep ascent, in the broiling heat of the sun, is a painful sight. With all their hard and wearing work a few piastres a day is as much as they can earn, and how they can support their strength on their frugal meal of fruit and black bread is a mystery.

Out of a population of about 135,000, there is said to be upwards of 60,000 Jews in Salonica. They, and the Greeks to the number of 30,000, are the principal merchants and traders in the place. With such a preponderance of Jews it is natural that their influence should predominate. In nothing is this more apparent than in the observance of the Sabbath—the Jewish Sabbath, which is on the Saturday. On that day the bulk of the shops and warehouses in the city are closed, the factories are stopped, and there is a remarkable quietude and absence of business and bustle as compared with the other days of the week. The Turkish Sabbath is observed on Friday, and that of the Greeks, who are Christians, on Sunday, like our own, but on neither of these days is there any very marked sign of cessation from business.

The Jews of Salonica are passionately attached to the fatherland, and it is a thing of weekly occurrence for those advanced in years, especially women, to be seen taking ship for the Holy Land, with the view to laying down their bones in Jerusalem. On such occasions, the aged persons are escorted to the place of embarkation with much ceremony, by a procession of friends and neighbours, preceded by women beating tambourines and other manual instruments. The first Jews of Salonica came from Spain, whence they were driven out about 450 years ago, and settling here they have formed an important and growing community, many of them possessing great wealth. Their vernacular language is Spanish, largely enriched, or corrupted as some hold, by the incorporation into it of many Greek and Turkish words, prefixes and affixes.

One of the singing or praying dervishes that I saw in Salonica amused me much. He was seated, Turk fashion, on the flat top of a low wall, swaying his body backwards and forwards, half chanting, half repeating, his prayers, and batting his knees alternately with his hands. He appeared oblivious to all around, except every now and again, when he dipped his hand into his capacious trousers pocket, and stealthily bringing out a bottle, from which he took a swig, quickly replacing it in his vestment, and proceeding with his devotions. The liquid, as I was informed, was raki, an aromatic spirit, strong and intoxicating, which is distilled from grape skins, from which the wine has been pressed. The imbibing of spirits by his followers was strictly forbidden by the "Prophet;" but as the discovery of raki dates from a time subsequent to his death, the Turks venture to drink it whilst abstaining from the other

alcoholic beverages, thus adhering to the letter whilst ignoring the spirit of the prophet's injunction.

At Salonica I had the honour and pleasure of an introduction to the Rev. Peter Crosby, a clergyman of the Scotch Church, who has held a mission in this place for over a quarter of a century, a profound scholar, possessing an intimate acquaintance with the Hebrew and Latin languages, and able to speak with fluency and elegance several modern tongues. I will not say, as it would not be correct, that Mr. Crosby is wasting his abilities on the desert air in this outlandish spot, for both by precept and example he is doing noble work in Salonica, but certainly, as it appears to me, he would be in his rightful place filling a professional chair in the Edinburgh University. The scholarly attainments of the rev. gentleman are only equalled by the sweetness and amiability of his character. These qualities, as I had opportunity of observing, are fully appreciated by the inhabitants of Salonica—Mahomedans, Jews, and Christians. Not that he is sparing of censure when that is needed: on the contrary, he is not slow in his condemnation of the faults of those by whom he is surrounded. He is a worthy exemplar of the Christian minister, and a true gentleman in every sense of the word. I attended Mr. Crosby's service in his meeting-room on the Sabbath morning. He read the Scriptures and offered up prayer in French; and his sermon, which was impressive and eloquent, was given in English. Altogether the effect produced on my mind by my brief intercourse with him was wholesome and energising to a degree. Mr. Crosby is a safe and interesting guide to the city and its antiquities, which are of the most fascinating character to the student of history.

On the return journey the steamer called at Smyrna. I had not time to go ashore, and therefore had to content myself with observing the town from the deck of the vessel. The view of Smyrna from the bay is very fine, and certainly, though it is the capital of Asiatic Turkey, it has more of a European, and even English, appearance than any other of the Turkish cities I have seen. From this place my journey homewards was through the scenes I have thus briefly attempted to describe.

VICTORIA.—(*See Map.*)

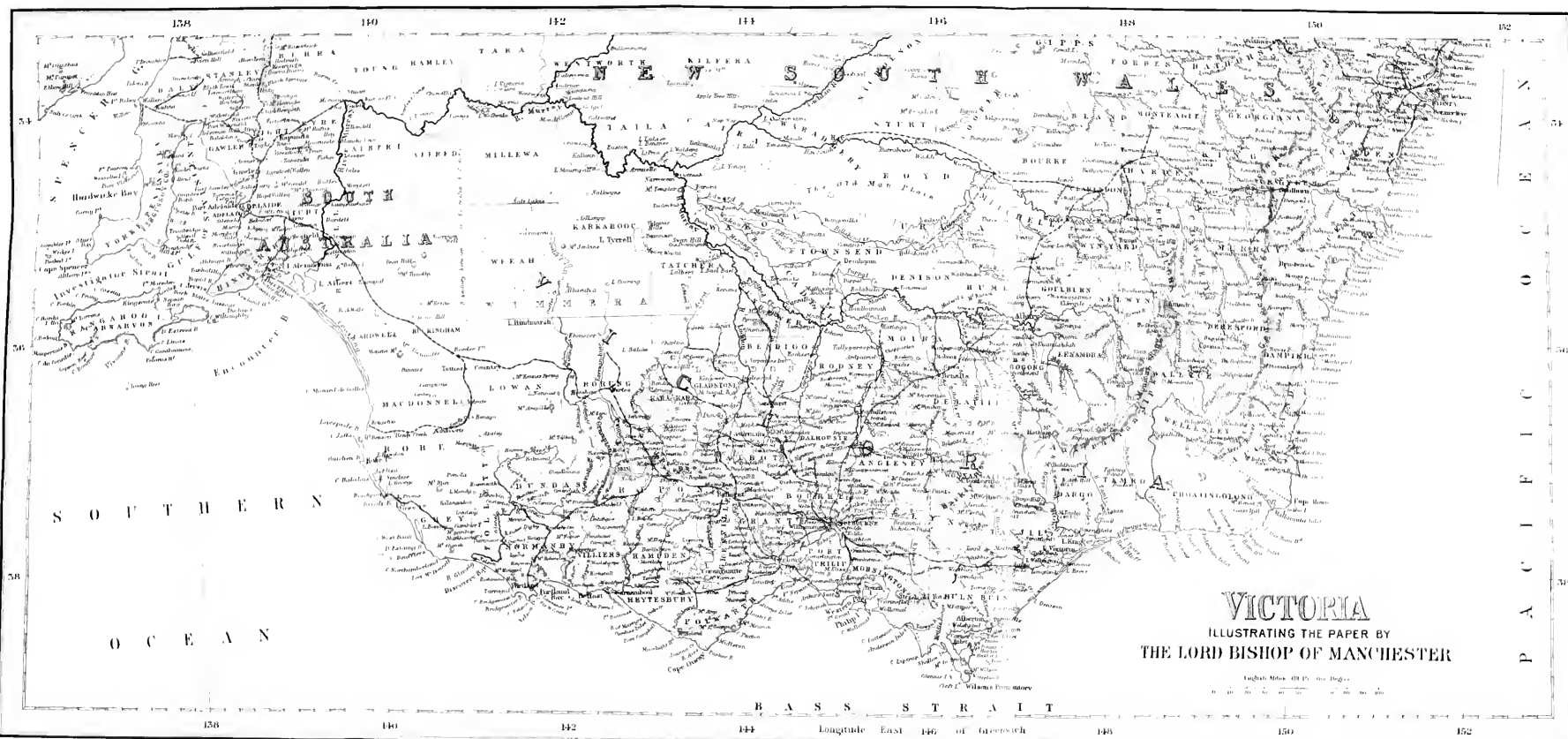
By DR. MOORHOUSE, the Right Reverend the Lord Bishop of Manchester.

[Delivered to the Members at the Memorial Hall, Manchester, March 7th, 1888.]

I AM quite sure that I owe you a very humble apology for the talk that I am going to deliver. I should have liked to have prepared for you a careful paper on this subject, but, unfortunately, the demands of my diocese were too urgent to permit of my doing so. I therefore trust that you will accept actual personal knowledge in place of lucid connection of the events and places illustrated, and some sort of literary form.

I have to speak to you, in the first place, a few words by way of introduction about Australia in general. People do not commonly comprehend the size of Australia. It is an island 2,500 miles long by very nearly 2,000 miles broad. Now, Europe is 3,200 miles long and only 1,600 miles broad. Europe contains 3,800,000 square miles; Australia a little more than 3,000,000 square miles, so you see it is very nearly as large as Europe. Again, Australia is remarkable, no doubt, for large deserts, which are dry and, possibly, incapable of becoming anything more than the scenes of grazing industry in days to come; but we must not forget that the whole of the north of Europe—Norway, Sweden, and Russia—consist of plains so sterile, and have a climate so severe, that they cannot ever become the scenes of the productive industry of a large population. No doubt it is at present a fact that only 3,000,000—perhaps a little more, I cannot quite tell you the number of hundred thousands—of people inhabit Australia. But I say without hesitation that there are so many naturally rich portions of that vast territory that the computation is not an extreme one which makes it out that within, say, one hundred years, there may be as many as 50,000,000 or 100,000,000 of the Anglo-Saxon race located in that island continent. Suppose that we have 100,000,000 there—while we have as many more in the United States and Canada, and certainly 50,000,000 in the home country—then, without reckoning the inhabitants of the Cape and the Englishmen scattered all over the world, we arrive at a total of 250,000,000 of members of our race. I think that will show you that it has pleased Providence to give us not only a vast imperial estate, but a place among the races of the earth which will assign to us a very important part in the future development of the world.





VICTORIA
ILLUSTRATING THE PAPER BY
THE LORD BISHOP OF MANCHESTER

English Miles 0 10 20 30 40 50
Feet 0 100 200 300 400 500

I have to talk to you, however, to-night about Victoria rather than Australia; and in order that you may not think that this colony is so diminutive that it is not worthy of spending too much time or attention upon, I will first of all institute a rough comparison of the areas of the mountains and the lengths of the rivers of Victoria and England respectively.

As to area, that of Victoria is very nearly 88,000 square miles. It is only one thirty-fourth part of the total area of Australia. It is a small colony, as Australian colonies go, but it has, nevertheless, 88,000 square miles of area. England and Wales and Scotland, or Great Britain, have only 90,000 square miles of area—that is, only 2,000 more square miles. Then as to mountains. There are some mountains in Victoria that rise to an elevation of more than 6,000ft., and many that are 5,000ft. high. The highest mountain in Great Britain is Ben Nevis, which, as you know, is only 4,500ft. high. Then, as to rivers. There is one river which is so far a Victorian river that it forms its northern boundary line, and which distances any of ours beyond comparison. I find that the length of the Thames is 215 miles, when measured through all its tortuous windings. Now the river Murray is 1,120 miles long, measured by the distance of country it covers; but if you measured it by its windings, it is 2,400 miles long. So that it is equal to ten river Thames put one at the end of the other. If I could put you where the Murray and the Murrumbidgee join, and show you that magnificent stream going on with a swift current 116 yards broad, shining under the beautiful moonlight of those clear skies and that clear air, and shaded by its majestic gum-trees, I am sure you would say that its waters carried along with it a wealth for the future almost immeasurable, because by-and-by its waters will be conveyed through a thousand silver channels through the whole of that northern plain, just as in the days gone by the Nile was spread all over the plains of Egypt, and the Tigris and Euphrates over the plains of Mesopotamia. I have spoken of the Murray because, as you see, the Murrumbidgee is not a Victorian river. [His Lordship then proceeded to point out the two rivers named.] The Murrumbidgee rises in the same Australian Alps as those forming the source of the Murray, and it includes the plain which ought to have belonged to Victoria. Here is Professor Lamb (the chairman), and he dare not deny that one of the most inconsiderate acts committed by the English Government at the request of the colonists was the taking away of that bit of territory from Victoria. It belongs to the same plain and river system. If reason had prevailed over the division of the colonies the boundary would have been thus (see map). This river Murrumbidgee has a length of 1,350 miles. Not one of the well-known little rivers of England is “in it” when you institute a comparison. You heard that it was a dry

country, but you did not think it was so full of rivers—rivers of such great depth, so wide, and with such deep currents.

I must now describe what were the first circumstances under which Victoria came to the knowledge of the world. The first spies that found out Victoria brought up an evil report of her. Such persons as Mr. Grimes and Colonel Collins happened to come by sea. There were no roads, and as they would have had to ride through trackless forests it was easier for them to go round by ship. Colonel Collins landed at a place called Sorrento. There is a narrow entrance there; but the bay to which it leads is about 40 miles long. He found that the land was nothing but sand, and that he could get no water. Mr. Grimes had been as hasty in his examination, and he made an identical report. He said the land was worthless, and that all that there was for a visitor to do was to get out of it as quickly as possible. In saying that, he did Victoria a great kindness, inasmuch as he prevented the Government from sending convicts to Victoria. Any persons who had been sent to Australia at that time would have been convicts, and the Government thought the land so utterly valueless that it was not good enough even for convicts. And so people thought for a good long time. At last, however, two gentlemen called Henty went from Tasmania and landed at Portland. They set up an establishment, which was partly a grazing establishment and partly a fishing establishment. They catch whales there, which is, perhaps, something you did not know. This was one of the employments of the persons engaged by these Hentys. I may tell you, in passing, that it was difficult to keep order in those early days. The people were not lawless, but they were rough. And when the partners got any persons to enter their service they were apt to affirm their own independence, and there was no way of reducing them to subjection and of keeping order in the little settlement but by appointing one of the partners to be the representative of physical force. There was a certain field, which was called the "Convincing Ground," and if any man thought he was a better man than the master, Mr. Henty would say, "Come to the Convincing Ground." Thither they would go, take off their coats, and try who was the better man of the two. For the most part Mr. Henty thrashed his man, but if a man thrashed Mr. Henty he was dismissed. In every way the colony got on. Soon after the Hentys settled at Portland, Major Mitchell left New South Wales, crossed the Murrumbidgee, crossed the Murray, crossed trackless expanses of country, and came out there (see map). The one party took the other for bushrangers, whilst they themselves were taken for pirates. There was danger of a collision, and it was only at the last moment that they found that they were equally law-abiding people and good subjects of Her Majesty. They made a peace, and they were the means of

making known the real character of the country. And they were followed, in no long time, by a large number of what are called "squatters"—that is, pastoral tenants, who have taken large tracts of country and paid a certain rent for them to the Government. Victoria was, on the whole, nothing but pastoral country until the year 1850. By that time it had gradually grown to have a population of 76,000, and the people were a very happy family. I have often heard the old squatters talk of those first days. They said that Victoria was in those days an Arcadia, but there came upon the poor colony, in 1851, a tremendous calamity. There happened one of the most awful and destructive bushfires recorded in history. They never refer to it in Victoria but as "Black Thursday," partly owing to the physical appearance of the country at the time and partly from the calamities attendant upon it. The greater part of the country was burnt, as well as holdings, houses, farm implements, cattle and horses, and many lives, too, were lost. The country was covered with a great thick black cloud. Some people said the judgment-day had come—and indeed it had come to many. They fled in all directions to the courses of the streams and hid themselves under the water, and thus a good many saved their lives. But so vast was the conflagration that hundreds of miles away at sea the products of combustion which were light enough to be carried on the wings of the wind were dropped into the water. I have watched a bush-fire which, though a baby-fire in comparison with that of "Black Thursday," was nevertheless tremendous in appearance. I happened to be staying at the seaside. It began to be dark, and so I went out to see what was the matter, and I discovered that there was a blackness creeping over the sky. It was black as night whilst out at sea it was clear. The general impression on one was that it must be thick enough to get up as high as the sun, though, of course, one's reason told one that it was not. And by-and-by it seemed to be coming down lower and lower, so that it seemed it might suffocate us all. And whilst I was thinking about this great black pall, which was covering the sky as if with mourning, I heard a roar, and looking up to a hill which formed the horizon, I saw the fire suddenly leap into view. There were some trees 200 feet high there, and I assure you it leapt at them like a wild beast at its prey, and consumed them, as far as their twigs and slender branches were concerned, in a moment, only leaving the central boles and greater boughs. I never saw anything so awful. It was described to me, so far as description was possible, by persons who were overtaken by it in the heart of the forest. They were in the midst of a roaring furnace. The heat was so intense that they could scarcely get air to breathe, and could only save their lives by rushing out of their little holdings, and by lying down amongst the potatoes and covering themselves with wet sacks.

While I was looking at this fire I saw a woman and some children come running along the seashore. When the fire first came upon them they had been able to run down a gully, which was contiguous to their house, and just get out of the way of death. I said to the woman, "I am afraid you have had a very narrow escape." She replied, and her eyes looked like those of a frightened animal, "It was like a burning fiery furnace." We can sit in our chairs and hear about such things, but we should not like to be amongst them. I can assure you that that calamity so burned itself in upon the imagination of the inhabitants of Victoria, that you could never mention it in the presence of old people without a sort of shudder coming over them. That was in the year 1851. Then a great change took place in Victoria, for in the year 1852 (or it may have been in the latter part of 1851) an old shepherd found a lump of gold in a tussock of grass. He went and told somebody that he had found it. The squatters and the Government tried to hush up the tidings of the find. They did not want their Arcadia invaded by those hordes of rowdies who had made their wild cry heard from California, on the other side of the Pacific.

But it was impossible, when once gold had been found, to conceal the discovery. The shepherd talked, and others listened, and then went off to the districts indicated. Prospectors increased in number, and before long they discovered the three great alluvial diggings of Ballarat, Mount Alexander, (now called Castlemaine), and Bendigo (now called Sandhurst). This last is now a city of 40,000 people. These three centres of alluvial diggings were discovered nearly at the same time by those prospectors, and the consequence was a great rush of all the inhabitants of Victoria to the diggings. As soon as the news was spread abroad, the sea was white with the sails of the ships bringing men from every quarter of the civilised world to Victoria. For literally the whole of the alluvial deposit on the sides of the creeks at these three centres I have named was full of gold. There were what are called "jewellers' shops" in it—that is to say, a man digging down found the ground not only thick with gold dust, but glittering with great lumps of gold. The men went positively mad about it. Some people washed their hands in gold dust, whilst others shod their horses with gold. Some people spent money in purchasing £5 notes, and, putting them between cakes and slices of bread and butter, ate them. Others, of a more brutal and less sentimental turn of mind, purchased enormous numbers of bottles of champagne, broke the necks off, filled buckets with the wine, and drank it as horses drink. Of course they had gone mad. Here were a number of men not accustomed to the possession of gold, and not knowing how to use it, yet picking it up literally by handfuls. By-and-by, from all parts of the world, people

began to land in Melbourne. Some of them stopped for a little time at Canvastown, and providing themselves with a couple of blankets, a "billy" for boiling their tea in, and a shovel, they had all that was necessary to make them rich men. There never was such a sight. Of course there were terrible scenes at times, and a great deal of dissipation amongst the grosser spirits; but there was a great deal of real enjoyment amongst those who knew how to live and conduct themselves reasonably. I have heard men holding the highest positions in society in the colony, men whom I have felt it an honour to call friends, say that no days in their lives were so happy as those they spent, dressed in coarse blue shirts, digging in the early times of the gold fever, because, you know, a man feels a little lively when he has a bag of gold dust tied inside his girdle, with a good revolver on either side to take care of it. He knows he has the means of making himself a happy life somewhere. They would sit down with their great heavy boots on, and pull out their pipes and smoke, and tell tales. I have smoked with people of that kind myself; and I can assure you that it is pleasant company, even though you might have nothing but damper and mutton, which was the staple food in the gold-digging days. Yes, they were very happy. But if you could see the place where the gold diggings were, you would find it looking as if hundreds of thousands of gigantic moles had been turning up the earth to try what an overturn they could make. I never saw anywhere such a mass of dirt-heaps as are piled up in those gullies which form the scenes of the former gold diggings. And yet people got to love those places. There was a girl who lived at a place called Long Gully, not very far from Bendigo—a very ugly place indeed. She married an American, who afterwards was very successful. He took a house for her in Fifth Avenue, and she was surrounded by all the splendours of American society; but she one day said, "It is no use! I cannot stand it. I cannot do with this miserable place. I must go back to Long Gully, if it is only to be there an hour." And she positively forced her wealthy husband to bring her across the Pacific, and she went and lived for a time in Long Gully. So you see these were pleasant days to many people, in spite of their roughness and discomfort. But that, of course, is now all over. No more gold is to be got out of the alluvial diggings. Perhaps you will ask how gold came there. Well, I can only tell you what the scientists say. It came in this way. For untold ages denudation had been going on amongst the granite ranges of northern Victoria, and this denudation had gone on so far as to cut off and wash down great peaks of granite mountains; and of course gold, being very heavy, instead of being carried away by the water, was deposited amongst the mud at the bottom. So, gradually, the masses of quartz were washed quite away,

and the particles and pieces of gold were deposited in the mud, layer after layer, until it was literally golden paste from top to bottom; and there it had been lying for untold ages. The black fellows had been hunting the wallaby and the kangaroo over the spot, knowing nothing about it. For ages—ages to which the period of our race is as yesterday—it had been lying there—and all at once it was discovered; and just, I believe, when we wanted it most. Some of you may have lived through the dismal “forties.” If you have, you know what I know—viz., that England perhaps never felt more miserable than she did when passing through those dismal times. There was no work, and worse, there was the same sort of inelastic depression that has fallen upon England just now. It seemed as if the trade could not revive. There was no spring in it, and men were beginning to despair. I remember the gaunt and pale figures passing through our streets and the wasted forms of our operatives. I was then a Sheffield boy, and I remember it too well. Henry Russell did something to dispel the prevailing impression by his American songs. But when he sang, “There’s a good time coming, boys, wait a little longer,” their faces used to fall, and they said, “The good time may be coming, but it is a long time on the way, and, alas! the women and children are starving while we wait.” Men got desperate. Whenever there is a long depression, people begin to say that the Government is to blame, and to think that if they could choose the Government matters would mend. So at that time men were ready to rebel, in order to obtain universal suffrage. That by itself could have done them very little good. You cannot, as old Thomas Carlyle says, make matters better by the ballot-box: you will have to get something more than that. The men who vote must have intelligence, and must have righteousness, and be able to see and select the wise and good men; and it depends upon that as to whether voting does us any good or not. I want everyone to have a vote—I think it is right; but I also want the voters so well educated that their vote shall be significant—that it shall mean choosing the right men and putting them into the right place.

What really did us good at that time was not getting the Charter, but it was the finding of these gold-fields. It is startling to see how God in his providence sometimes finds the remedy for our distress in a way no one could have dreamt of. What would you have thought if a man had told you that there was a country where the dust was gold? You would have laughed at him. But 80,000 people went to Victoria in one year during that gold-fever, and they came in the same numbers, or nearly the same, for several years. Thus England was relieved of thousands of surplus mouths, and, what was far better, commerce was relieved by the oiling of its machinery. Gold, of course,

is not intrinsically more valuable than other commodities, but then it forms the circulating medium, and when you largely increase this you facilitate the operations of trade and inspire general confidence. And that oiling of the wheels and that new-sprung confidence got the old machine out of the ruts and set England forward upon a career of commercial prosperity that has been unexampled. But all that is over. You cannot expect another such sudden increase of gold. The alluvial soil has been washed by Europeans and re-washed by Chinese, until, I believe, you could not get another grain of gold out of it. It was the tops of the quartz ranges, that had been washed away by the streams in past days, and from which the gold had been deposited, and though the upper parts of those ranges were the richest (because we find no such nuggets in the lower parts), still the lower portions of the quartz ranges remain in the country and now gold-seeking is "mining." Beforetimes they talked about "miners," but there were no miners in reality. The men only dug a little way down into the mud, whereas now they have to drive 1,000, 1,500, and as much as 2,000ft. down through earth and rock. They have to go down until they strike the quartz reefs, and then, when they have found them, they have to erect stamping machinery, and to go to great expense to separate the gold from the quartz. Mining is now a trade, which employs about 36,000 men, a considerable number, I grant, though the industry is only one, and not the most important, of those of modern Victoria. I may tell you, to show you how very rich those old reefs, to which I have been referring, were, that from them were actually obtained nuggets worth £5,000, £7,000, and even £10,000 each.

There is a history in connection with a very remarkable nugget, the most valuable obtained. There was a reader of the Church of England who used to ply his calling upon the gold-fields. In passing from one station to another his attention was attracted often by a very conspicuous tree, which promised him shade—and shade is a very hard thing to get there, because the gum-tree has an inconvenient habit of turning the edges of its leaves towards the sun, that they may not be injured by receiving the full glare of the sunlight on the broad of the leaf. This habit of the tree is inconvenient to the person seeking shelter. But the tree to which I have referred was so thick in foliage, and promised such admirable shade, that the reader selected it as his dinner-tent for some months. One day some diggers were coming down the country, and they, too, sought the shelter of the tree at dinner-time. One of them, in an idle moment, drove his pick into the ground, and feeling some resistance, he drove it in a little deeper. On tilting up the obstacle, he actually unearthed a nugget of bright pure gold, of the value of £10,000. There it was, bright and glittering in the

Australian sun. Unfortunately, our friend the reader, was a man who cared about money, and they say that when he was told that he had dined for months on £10,000, he was heard to gasp out: "Well, God never meant me to be a rich man." Well, such experiences can never be repeated now, and the people have therefore to turn, as I was saying, to other occupations.

I will now try to describe the permanent resources of Victoria. Amongst them I reckon those deep quartz reefs in which men are now working by means of the proper machinery, but they do not constitute its principal wealth. In order to understand this it will be necessary for you to look at this map whilst I explain the physical peculiarities of the country. You see an indication here of the southern points of a great range. This is the axial range of Australia. It runs for 2,000 miles north, right up into Queensland. The highest part of this range is the southern part. I assure you that you cannot have any idea of the magnificence of the view presented by that range unless you should see it. I have stood on the most advantageous points of view in Europe—upon Pilatus—looking over the Lake of Lucerne, and the mountains of central Switzerland—I have stood on the top of Pitz Languard, and looked right across Switzerland to Mont Blanc and Monte Rosa in the west—but I never saw such a sea of mountains as I beheld from a little point there (see map), which is called Matlock, near Wood's Point, looking over the vast expanse of the Australian Alps. They are magnificent, as they roll away, range over range, as it seems endlessly. Think of all the water and snow those mountains gather. What becomes of it? It is brought down by the great rivers. The waters fill the Murray, the Murrumbidgee, and other streams, and it is from these great ranges that Victoria will have to draw its water hereafter for a certain part of its area. This I will explain to you. One of the spurs—it is nothing but a spur—of this great axial range runs through Victoria, dividing it into two portions. It has an average height of about 1,500ft. and is nearly 3,000ft. high in its central point. If any one knows the connection and meaning of these two ranges, he possesses the whole secret of the physical resources of Victoria. The country below the great dividing range is something like 100 miles long, and the coast part of it has a very considerable rainfall. It is said to be on the average the same as that of Melbourne, which is 25·4in. in the year, or more than that of London, which is only 24in., and more than that of Paris, which is only 22in. It is more than that of the southern counties of England and the metropolitan counties, the one being from 18in. to 26in., and the other from 16in. to 28in. There is enough water coming from the clouds to enable the people to cultivate any parts of that plain which have rich soil. And there are

many parts of it which have admirable soil in the western portion of Victoria. Geelong, situated on Port Philip, is the place to which all the productions of this district of the west are brought. Near it is Lake Colac. Around that lake is a rich country, which has been taken up by the Robertsons, and further west the Hentys have taken up some beautiful downs and excellent country of all kinds. And south, nearer to the sea, there is Belfast, and a little place called Koroit, where there is some of the finest land in the whole world. I am sorry to tell you that at present it cannot be devoted to its proper uses. Why? I think that every new colony ought, at the beginning, to divide its land into two parts, an agricultural area and a pastoral area. I think it ought to let out the pastoral area to tenants in pretty large runs, because it is only on large runs that a man can make cattle-raising and sheep-farming profitable. Then its agricultural area should be let out in small blocks for small farms, because the plough ought to pass over every acre of such land as that in the west. The Robertsons, the Hentys, and others have taken it all up, bought it at Government rates for £1 per acre, and have kept it for pastoral land. I say that this is a pity—but I do not say, as some people in the colonies say, that it is a shame.

If a government offers land at a certain rate, every citizen has a right to buy it, and to devote it to whatever purpose may appear most profitable to himself. No blame is to be attached to those tenants for making use of it in their own way. But it is a pity it is not being adapted to the most useful purpose. It ought to be divided into small farms, and then, with a copious rainfall, and with some of the best land in the world, I think that Western Victoria would one day be the scene of a swarming population, all of whom would live on the fat of the land. It will all come about before long, because, in course of time, it will be to the interest of the squatter to sell his property. I know, in fact, that the Robertsons are even now dividing their estate, and selling it in small blocks. We have only to wait. In Victoria the sale of land is free, not burdened, as in England, by the necessity of making out titles, which are often full of difficulties, by which the pockets of the lawyers are filled. I quite believe it is necessary to have lawyers, but I do not want us to create work for lawyers unnecessarily. And, really, one of the most abominable abuses of our social system in England is the necessity for proving titles to land. In Victoria you just register your property, and its purchase, in a Government book, and that register is held to be proof enough of a valid title. You can get a copy of that entry for a guinea or so, and you know that the title to the land is good. Under this system a man may buy and sell land when he chooses. And as land passes rapidly from hand to hand, you may be sure that in no long

time this great country; this fertile portion of Victoria to the west, will be a scene of unexampled prosperity. Well, what is the reason for the fertility of this land? If I could take you and place you on Redmount, not very far from Colac, and thus enable you to look round on a wide stretch of country, you would know in a moment what made it better than any land you have in England, almost better than any in the world. You would notice that everywhere the country is dotted with small lakes. These have funnel-shaped shelving banks, and though they are so small, they are so deep that you can hardly get soundings in some of them. They are all craters of extinct volcanoes. I could take you to a little place called Tower Hill, near Belfast, and there you would see one of the most marvellous sights in the world. From Koroit you ascend an insignificant slope, which would never tempt your curiosity, but on reaching its summit there bursts upon you a view which is one of the most weird and extraordinary that the imagination of man can conceive. The whole country right and left and in front is filled with craters of old volcanoes. Most of them are grassed down to their bottoms. The central crater of all must have been a monstrous volcano, but it is now occupied by a lake. And the whole of that wild scene is girdled in by a shore upon which there beats for ever the long swell of the great Southern Ocean. It is a marvellous sight. No wonder that all the land in the vicinity of those volcanoes is valuable, for it is a deep volcanic loam, black, very fine, and so deep that into it you could thrust your walking-stick up to the handle and not find bottom. You could cultivate anything on that land. At first it was in the hands of squatters, but gradually men began to offer large sums of money for it. There is no one so wise as your Irish peasant when he once leaves Ireland. Not even a Yorkshireman can cheat him. He knows his own interest, and he goes to the squatter and keeps offering him a higher price per acre for this grand land, till at last the squatter is tempted to sell. And I can tell you that land, which was originally bought at an all-round price of £1 per acre, is selling to-day at £40 an acre. The Irishman generally grows potatoes on this land; and I can tell you that there are no better potatoes in the world. I have seen potatoes grown in such soil literally as big as both my hands. The soil, indeed, will grow anything; and it only needs to come under the plough to become the scene of unexampled prosperity. I have spoken of the western side of Victoria. But there is a side or part of the country, to the east, equally rich and interesting, but where farming is not so easy, because the land is only recently settled, and clearing has not been completed. This part is called Gippsland. The country was once thought to be worthless. When I first went to the colony my good wife and I drove through it in a special

carriage, the hire of which for the return journey was £30—and large as that sum seems, I must say that the driver earned his money. I never went along such a road, and I don't think any of you ever did who have not gone through a virgin forest. Now, there is a railway. It is marked on the map. Near the route, which you see is followed by the railway, was a track over which they first drove us. As we went along we often came to a track so tortuous, running in and out between forest trees, that every moment a stranger would expect to have his brains knocked out against one of them. But our driver was so skilful, and the horses seemed so accustomed to that kind of thing, that we often went at a hand-gallop, in and out, and at last got to think nothing about it. Other parts of the path presented sidlings—and sidlings, you must know, are not the same things, by any means, as sidings. A siding is a road neatly cut out of the hill, but a sidling is an irregular track over the steep slope of the uncut hill; and when the carriage wheels are slipping under you on one of these sidlings the sensation is, to a stranger, almost sickening at times. Other parts of the road had been broken into pits and deep ruts, called locally "crab-holes." There is a land crab which makes an interior chamber in the ground for itself underneath the roads, with a little opening or hole at the top, out of which he throws the dirt and out of which he makes his exit. But the rain gets into this chamber and softens the earth inside, and then the very next dray that goes over beats it in. When you have three or four of these chambers broken into one, you get a pit, and if you cannot go out of your track to escape it you are obliged to go through it. On such roads iron springs would not be of any use. But they have coaches there which are hung on leather braces, and, though I should not recommend you to try one upon bush roads, yet it is astonishing what knocking about they will bear. We—that is, my wife and I—drove once for 80 miles along such a road in such a coach. It took us 14 hours to do the distance, and we were shaken about like peas in a pill box. But there is a railway in Gippsland now to take people into different parts of the forest, so that they can look about them for likely land. People going on that errand find belts of enormous timber, the biggest timber in the world, far larger than the *Wellingtonia gigantea*. I have seen one of those trees which was said to be 400ft. high, and I possess a photograph of one which was 450ft. high—that is equal to 150 yards. Its height would dwarf that of the dome of St. Paul's Cathedral. Wherever there is timber like that there is sure to be fertile soil. There is thus an indication where to look for such soil. And in the Gippsland forest, which had not then more than a dozen people, except at Buln-Buln, there are now more than 20,000 people scattered all over in the fertile belts. Now, they have got in those belts exactly

the same volcanic soil as that which I described as being found in the western district. But, oh, the clearing! How would you get those big trees down? Mr. Gladstone would have to break two or three axes before he had got to the middle of one. You cannot cut them down: you have to burn them down. I shall never forget my first experience in the Buln-Buln clearing. When night came on we were surrounded by great red blazing trunks of trees. It reminded one of Pandemonium more than anything else. And by the side of this big timber there is impenetrable scrub. You cannot make your way through it. It all has to be cleared with the axe before the cultivation of the soil can begin. Now, there are some of the finest men on the earth's surface engaged in that forest. There are "Geordies," Westmorland men, Yorkshire men, Cornish miners—in fact, representatives of every English, Scotch, and Irish district there. And they are all energetic, enterprising, industrious, and enduring men; but I have been frequently told by them, when smoking my pipe in their company at night by their fires, that it almost drags the heart out of a man to get the country clear. One man said to me, "I have been ten years at it, and have not done it yet." But when the clearing is done, what may have cost from £300 to £400 will probably be worth £10,000. It is a lifework, but there is something at the end of it, and there is something also for that man's sons and his sons' sons. They will have admirable farms which will make them prosperous men. But as such things are sought after, these cleared grounds are very often sold, for the population is increasing, and when a man begins to have too many neighbours there is sometimes a desire to get away. A man will say to himself, "Ah, there is another fellow actually within a mile of me! I must be off." They will consequently sell and go away. What is the consequence? By-and-by the sides of this plain will be filled with cultivators. The land, like that in the western district, is the most fertile in the world. It will grow anything, and there is besides an abundant rainfall. I do not venture to say how many Anglo-Saxon people it will feed, but I have no doubt that it, together with the western district, will afford subsistence for as many as half the agricultural population of England. Along both sides of the dividing range there is a similarly copious rainfall, and there are beautiful fertile valleys to be found. The rainfall on that tableland on both sides of that range is at least 30in. a year, and that is abundant. There are sites or slopes for vineyards there along a line of country quite 200 miles in length, and there are some of the finest exposures for vines to be found anywhere in the world. You will not always treat colonial wine with that contempt you have shown to it hitherto. It has been treated habitually as of comparatively no value. But the other day the Emperor of Germany gave a

prize to one of the cultivators of Victorian wine, and since then people have begun to find that the juice of the Victorian grape is the very best in the world. The reason for the prevalent objection to Australian wine lies in certain peculiarities of taste, owing to the cultivators and manufacturers not having European experience or assistance in maturing and manipulating it. But, as soon as that is gained, you will get from Victoria and these enormous tracts of vineyard country as good wine as from France or Germany. On that central tableland there are also beautiful fertile valleys, near a place called Daylesford. I have seen the plough being taken over ground which you would have thought contained nothing but stones. It was, however, deep volcanic loam, and I have no doubt that one day all that land will be highly cultivated. At present, however, farming in Victoria is, with few exceptions, negligent and unthrifty. There are some good farms. There are good potato and other farms at places like Lancefield, but the persons having such farms are few in number. As a general rule the Victorian farmer thinks it is enough to throw wheat into the ground year after year. Thus he takes out of the soil all the chemical properties which go to produce wheat, and he puts nothing back in the shape of manure. I used to say: "This is very foolish. There are some things which you can do, and be none the worse for doing, but there are some things which neither you nor I can do without loss. You cannot break a law of nature and be none the worse for so doing; and here you are breaking a law of nature. You are using up material and not replacing it, and you cannot do that without having smaller and smaller yields year by year. The result was as I predicted. They do not want water on the central tableland: they have plenty of it. They simply need to practice good farming, the use of manure, and rotation of crops. They could then grow, besides wheat, maize, barley, and peas; they could grow capital tobacco; and also every kind of fruit that might be found in an English orchard. But the farmer is too big a man to do this. He says that only a Chinaman is fit to grow tobacco. He will not give the necessary time and labour. The fact is that the country is underpeopled, and that there needs to be poured into it some of the surplus population of England, in order that those profitable occupations may be taken up which are now so much neglected. But why, it may be asked, does not Victoria welcome the Chinese labour? There are—it must be admitted, no better cultivators than the Chinese—none more patient or more industrious. A Chinaman will go round a tobacco plant and wash every single leaf of it. An Englishman would not do this. Why, then, does not Victoria bring the Chinese labourers upon the land? Well, you see, Australia is the back door to China, and since China has 300,000,000 inhabitants, if once Australia

were freely opened to the Chinese, it might be inundated with a vast population, which would leave no room for the Anglo-Saxons, or for Europeans. I think, therefore, that a great deal of prudence is shown by the authorities of Australia in hesitating to allow the Chinese to come in. There are 12,000 of them already in Victoria, but the Government now imposes a poll-tax on any new-comers. It is afraid not only of the numbers of the Chinese, but also of the moral habits which they bring with them. Victoria is rather a big subject, and I shall have to leave the subject of dairy farming, among others, all but untouched. This, however, is another development to come as soon as the farmers practice rotation of crops and grow roots. They will then be able to produce cheese and butter in enormous quantities. You see they can keep their cattle all the winter in the fields, and need not give them anything but the natural fruits of the ground. I do not say that they would not get better returns if they did this, but what I have said shows the great advantages they possess. If the farmers would practise the system of united dairy farming, as they do in America—that is, taking the milk from a number of contiguous dairies, and from it manufacturing a uniform article, they would be able to export large quantities of cheese and butter, and would help to fill our markets just at the time of the year when we most want it. For, observe, the American season is our season, whereas, in the case of Victoria, the seasons are reversed in relation to ours; and just when we should be feeding our cows on swedes, and finding ourselves hardly able to get decent butter, these Victorians would be in the midst of summer. Their cattle would then be fat and well-liking, and would be giving the very best of their milk and their butter. There are great markets in this country for the products of such dairy farming. In the north, at the foot of this great dividing range, you come to a great plain. The north-western portion of it is not of much use at present, while the eastern portion is mountainous. It is this part which is so good. All over there is a vast plain, 80 miles in one direction and 40 miles in another. Most of the Victorian farmers are spread over that plain. They went there because the richest pastures had been taken up by the squatters, and because, on the northern plain, there is no forest, and they could get on the land at once without having to clear it; but, unfortunately, the rainfall in that part is not adequate. It is true it is 20 inches in some places, but then it is only 10 inches in others. What is to be done with it? What is the use of cultivation if you cannot get crops? There is the great Murray, and there is the Murrumbidgee, both enormous rivers full of water, bringing down the snows of those alps, and bringing them into such a position that you have only to tap these rivers in

the higher parts of their courses and you could easily bring the water right across the plains, and fill them with the silver veins of irrigation canals; and by doing that you could make the growing of root crops as profitable and as easy in the north as you can with the plentiful rainfall of the southern plains. It is easy to bring this about. I have been all over the plain, in every conceivable direction, and I can assure you that in a time of flood, when the rivers are only just spilling their waters over their banks, so easy and so slight is the fall that the water runs all over the country just as it might over a billiard table. Nevertheless, with the usual improvidence of young settlers, instead of making the roads run over the higher parts of the plain, they have taken them through the swampy parts, which would be less useful for sheep feeding. Owing to this circumstance I have known farmers obliged to keep their produce back from market for months, because they could not pass along the roads with it in wet weather. We—that is, my wife and I—went once, at a time of flood, along the western side of that plain in a thing which we called “Noah’s Ark.” We gave it that name because of its heavy and venerable appearance. Before we started I stocked it with all kinds of ropes and twine, and bolts and nuts, and I can assure you that we used them all up in the repair of our ancient vehicle before we got to our journey’s end. At a place called Flynn’s Creek on that journey we saw four horses drowning before our eyes, and the water came into the vehicle right up to our feet. We got out without damage, but it was not a pleasant experience. You see, then, how easily the water runs over that land. Irrigation could be had at a very cheap rate, and with very little trouble. There will come a time when the whole of that plain will be filled with people; for the Victorian Government has at last taken heart of grace, and having sent a deputation to California to get a report of the manner in which the American Government irrigated the plains of that State, it has, I believe, passed an Act for the irrigation of the plains. If that scheme be carried out, they will want millions of people to go out and settle on that plain. They *must* have a large population, for irrigated land will not pay in farms of more than from ten to twenty acres. In relation to the question of rain, somebody said that I did not acknowledge the value of prayer; but I say that prayer must be for the right things. You must pray for that which it is God’s will that you should pray for. When, therefore, a man comes and asks me to make prayer a substitute for work, and not a request for God’s blessing upon work, I certainly will not pray as he desires, either here, there, or anywhere else. These people were short of water, and they asked me to fall down and pray to God to send them rain. “God,” I said, “has sent you the water; it is flowing through your plains, and yet

you are so idle that you will not take the trouble to use it. You are like the wagoner who prayed to Jove to get his wagon out of the mire, and who received no help but a recommendation to put his own shoulder to the wheel. I will pray," I said, "to God to ask him to forgive you for your idleness, and to give you courage and enterprise to make canals, but pray for rain I will not, as long as you will not use what God has sent you." This was plain talking, but the people in general were honest and reasonable enough to forgive me for it.

And now one word, in conclusion, about the people. They are a thoroughly intelligent people, as I have explained, and I think that one reason of that is the character of their newspaper press. Their newspapers introduce subjects of more general interest than those which ordinarily find place in English newspapers. There is not a subject in theology or philosophy any more than in social or political economy which those newspapers do not treat upon, and there is hardly a book published in Europe of which you do not find a review in their columns. Even my own poor attempts at lecturing used to be printed in full in all the daily papers there, one of them with a sale of 56,000 copies a day, and circulating all over Australia. The people do not read books; they have neither time nor strength to do so in the country districts, owing to their heavy work. But they read their papers, and they read them through. I wonder how many of you here do that. The people are wide-awake, intelligent men, and are becoming as good physically as they are mentally. They have not, perhaps, got the stubborn energy of our northern blood, and that is the difficulty with the young Australians. They have no equals for amusements; but if you put them into a shop or an office, and bid them work steadily for ten hours a day, they will say: "Eight hours to sleep, eight hours to play, eight hours to work, and eight shillings a day." They do not want to work more than eight hours a day. What do they do with their leisure? They employ it, on the whole, very well, and their amusements, though rather boisterous, are always orderly. They are good cricketers and rowers. You know they are good football players, but you will know that better when they send a twenty which shall beat any twenty in England. They are splendid horsemen; there are no better in the world. They ride like centaurs. Every Australian, from his infancy, gets on horseback whenever there is a chance. I have seen a boy spend half an hour in catching a horse in order to ride it ten minutes. If our Empire in India is ever threatened by Russia, or ever invaded by Cossacks, and you get such a light cavalry as Australia will furnish you, I venture to predict that you will see those Russian hordes driven back over the mountain chains into the deserts of Middle Asia. They would let them know that the Queen of England

reigns over something more than these islands if such invaders ever ventured to provoke hostilities with us.

If you were to go to that land now, even the most refined of you, you would discover that already the country is filled with railroads, already it has splendid highways, already great public libraries and admirable institutions of all kinds both for amusement and improvement; and already Christian churches established in all parts of the country. And let me tell you that such churches are better attended than our churches here, a great deal, for the returns show an average attendance of 300,000 on the Sunday in Victoria, out of a population of 1,000,000. A high average that. That being so, if you go there you will feel that you have got amongst a kindly English race, speaking the kindly English tongue, having a tender English heart, being, in short, a new England in everything but this—that it has no paupers and no destitution.

His lordship, in reply to a question asked by Mr. Hamer, as to the size, &c., of Melbourne, said: Fifty years ago Melbourne was a collection of small huts. It has now a population of nearly 400,000, and not only is it equal in population to many English cities, but in size it is much greater, owing to the area over which it spreads. There are great open spaces in the middle of the city set apart for the public, and to be kept open for all time. There are also great public parks. The streets are long and wide, and very splendid and regular—indeed, I do not know but that they are perhaps too regular. There is not a suggestion of antiquity in Melbourne. There is more of that to be seen in Sydney, because the streets there—that is, the principal ones—were made to follow the old bullock tracks. In Melbourne they have some of the finest commercial buildings to be seen in the world. Then the labourers are the best paid in the world. It is, indeed, a paradise for working men.

VICTORIAN STATISTICS.

From the Victorian Year Books, 1884-5, 1885-6, and 1886-7.

By H. H. HAYTER, C.M.G.

POPULATION.				Births, Deaths, and Marriages.			
Year.	Persons.	Males.	Females.	Births.	Deaths.	Marriages.	
1836 ...	224 ...	186 ...	38	1 ...	3 ...	—	
1846 ...	38,334 ...	23,531 ...	14,803	1,596 ...	328 ...	301	
1856 ...	397,560 ...	255,827 ...	141,733	14,420 ...	5,728 ...	4,116	
1866 ...	636,982 ...	357,012 ...	279,970	25,010 ...	12,286 ...	4,253	
1876 ...	801,717 ...	424,838 ...	376,879	26,769 ...	13,561 ...	4,949	
1886 ...	1,003,043 ...	531,452 ...	471,591	30,824 ...	14,952 ...	7,737	
By Sea.							
Year.	Immigrants.			Emigrants.			
1836	—			—			
1846	3,676			1,775			
1856	41,594			21,187			
1866	32,178			27,629			
1876	35,797			31,977			
1886	93,404			68,102			

GENERAL REVENUE AND EXPENDITURE.				LAND IN CULTIVATION.	
Year.	General Revenue.	General Expenditure.		Year.	Acres.
	£	£			
1836	—	2,165		1836	50
1846	96,347	51,095		1846	31,578
1856	2,972,496	2,668,835		1856	179,983
1866	3,079,160	3,222,025		1866	592,915
1876	4,325,156	4,572,844		1876	1,231,105
1886	6,481,021	6,513,540		1886	2,417,582

GOLD RAISED.			
Year.	Estimated Quantity.	Value at £4 per ounce.	
	oz.	£	
1851	145,137	580,548	
1856	2,985,735	11,942,940	
1866	1,478,280	5,913,120	
1876	963,760	3,855,046	
1886	665,196	2,660,784	

Totals raised from 1851 to 1886... 54,393,182 £217,572,728

PUBLIC DEBT.		
1855	.....	£480,000
1856	.....	648,100
1866	.....	8,844,855
1876	.....	17,011,382
1886	.....	30,114,203

RAILWAYS.			
Year.	Miles Opened.	Train Miles Travelled.	Total Receipts.
1860	—	—	£211,557
1866	271	1,543,762	724,186
1876	719	4,015,197	1,730,034
1886	1,743	7,256,703	2,329,126

ELECTRIC TELEGRAPHS.			
Year.	Number of Stations.	Number of Miles of Wire.	Number of Telegrams.
1860	33	—	166,803
1866	78	3,111	277,788
1876	181	4,745	801,946
1886	420	10,111	2,023,858

SAVINGS BANKS.			
Year.	Number of Savings Banks.	Number of Depositors.	Amount of Balances.
1851	4	1,426	£52,697
1856	6	3,620	245,923
1866	61	23,759	700,720
1876	170	69,027	1,507,235
1886	279	189,359	3,589,916

FRIENDLY SOCIETIES.			
Year.	Number of Branches.	Average Number of Members.	
1857	21	1,698	
1866	362	24,752	
1876	761	45,957	
1886	853	66,892	

CITIES, TOWNS, AND BOROUGHES.

Year.	Number.	Total Value of Rateable Property.	Revenue.
1857	19	£2,557,794	£219,960
1866	62	20,241,073	341,429
1876	59	29,638,515	446,256
1886	59	53,905,592	615,612

SHIRES AND ROAD DISTRICTS.

1857	16	£641,112	£58,113
1866	93	19,079,270	403,024
1876	110	46,143,622	595,146
1886	125	71,973,156	615,125

MILLS, MANUFACTORIES, AND MINING.

Year.	Flour Mills.	Manufactories, Works, &c. [exclusive of Flour Mills].	Mining Machinery Value.
1851	27	56	—
1856	77	213	£1,411,012 (1861)
1866	114	869	2,068,527
1876	152	2,150	1,989,500
1886	120	2,650	1,797,925

CHURCHES AND
CHAPELS.

Year.	Number.
1851	39
1856	473
1866	1,766
1876	2,602
1886	4,098

SCHOOLS
(Public and Private).

Year.	Number of Schools.	Number of Scholars on Roll.
1851	129	7,060
1856	455	26,323
1866	1,266	81,229
1876	2,143	260,407
1886	2,561	266,387

CRIME.—Number of Persons

Year.	Taken into Custody.	Committed for Trial.	Convicted after Commitment.	Executed.
1851	—	—	170	1
1856	—	—	480	1
1866	24,811	1,040	639	3
1876	25,281	680	384	3
1886	32,011	756	492	1

A Negro Nationality.—Intelligence of European efforts in Central and Equatorial Africa does not give much promise of any brilliant success in that sort of enterprise. It is becoming more and more evident that "Africa for the Africans" will have to be accepted by the world, however reluctant they may be to arrive at that conclusion. Numerous drawbacks attend the philanthropic efforts of Europeans in East Africa and their political operations on the Congo and the Niger. It was the idea and hope of the founders and early supporters of the American Colonisation Society that through their efforts a Christian negro nationality would be established on the coast of Africa able to penetrate the interior by its influence and embrace millions under its government. They believed, and nothing has yet transpired to discredit that belief, that only Africans could build up a permanent nation in equatorial Africa, and that such a nation was a necessity of humanity. Sir Samuel Rowe, K.C.M.S., of Sierra Leone, who recently visited Liberia, pronounced it "a fixed fact," *The African Repository*.

WATER SUPPLY TO LARGE TOWNS.—(*See Map.*)

By MR. WILLIAM SHERRATT, a Member of the City Council, and one of the Members of the Council of the Society.

[Addressed to the Members of the Society, at the Memorial Hall, Wednesday, April 4th, 1888.]

I ALWAYS think that it is very bad taste to begin to make apologies when about to perform a duty, and I will to-night simply make the statement that I am not a member of the Committee of the Manchester Waterworks. I am, therefore, not to be expected to be acquainted with all the details of the management of the water supply of Manchester. The responsibility of my being here to-night must be thrown on your Secretary, who happened to hear me once give an address to my constituents, in which, amongst other matters, I took occasion to make some remarks on the prospect of a water famine or panic with a view to encouraging economy in the use of the water supply. Your Secretary asked me to prepare a kind of lecture to be delivered before you, and this I have attempted to do. If I am not able to answer all the questions in detail, I will, at any rate, give you the best of the information I have on this subject.

Last summer there was a threatened water famine in Manchester and district. When a million of people are depending upon a supply of water it is a very serious matter that the supply should become perilously low, and threaten to interfere with trade and commerce generally, and especially so in respect to domestic comfort. We in Manchester were expecting a very much worse state of things than actually turned out to be the case. The scarcity of water during last summer was, however, not confined to Manchester, but was the case all over England. Many statements appeared in the papers which went to prove this. I cut out one such statement, and will read it to you to give you a sample of the then prevailing state of things in respect to water supply.

THE DROUGHT.—A RESERVOIR USED AS A CRICKET GROUND.—The water famine at Bacup is the most serious within the memory of the oldest inhabitant. The reservoir of the Rossendale Waterworks Company has been completely dried up for three weeks, and the bed has been utilised by a number of juveniles as a cricket ground. This is the first time the reservoir has been dried up since its formation more than thirty years ago. The private supplies are also showing signs of exhaustion. In consequence of the failure of the water supply, the Corner Dye Works, Bacup—Messrs. F. Steiner & Co.—at which between three to four hundred persons are employed, have been compelled to close, and will not be able to resume work until there is a very copious and continuous downpour.



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There were many other such reports published in various quarters. I need not dilate upon the necessity of a supply of pure water being available in ever-constant and full volume. It is necessary to human life. We here in Manchester have an enormous population depending upon the city's supply. And besides the requirements on this account there has to be reckoned the requirements of our own various industries, and of the manifold industries which are carried on in the towns close to Manchester, which towns also derive their supplies of domestic water from the same sources as we ourselves. Ancient history will show us that the people of old times were very careful to utilise all the water they could get of the purest kind. Wherever they could pitch upon a site which had wells in the immediate neighbourhood, that locality was considered a most desirable one. And wherever they could find indications of water there they would sink wells. If you take India, for instance, it would be easy to show how, through want of water, and consequently of irrigation works, many disastrous famines arose, to the great loss of human life and disturbance to commerce and trade. In the eighteenth century many continental cities, through being ill provided with water, suffered from epidemics, the seeds of disease being sown in the dry seasons. I suppose that many total abstainers, on leaving England, have frequently to take to drinking the wines of the countries they visit. The water supply of Paris and other continental cities is so bad as to cause such travellers to forsake their customary beverage. But as education has advanced people have become more enlightened, and have come to see the necessity of having pure water. Consequently, waterworks have been established almost everywhere. The principal facts in relation to a number of British and Foreign Waterworks will be found in the table (see Appendix, pp. 66, 67).

Manchester is able to boast of good water. Possibly, however, a reference to ancient history might convince us that we have little need to be too boastful. We find that Rome, though it had no steam power as we have, had its system of gravitation, had its waterworks, but on a far more extensive scale than we have now. Rome, with its million inhabitants, had three times the daily supply of water that London has now. They had nine aqueducts, 255 miles long, and these supplied to Rome 377,000,000 gallons daily. Our waterworks are about seventeen miles from Manchester. They supply Manchester and the district comprised under our powers (1,000,000 inhabitants) with about 19,000,000 gallons per day. We find that wherever the Romans went they left traces of their arrangements for supplying themselves with water. This was the case in Constantinople, Sicily, Greece, Spain, and other lands. We even read of extensive waterworks at Herculaneum and Pompeii.

At the commencement of the present century the population

of Manchester and Liverpool together amounted to 80,000 to 100,000. Now Liverpool, with Birkenhead, has 600,000. In Manchester and the district whereto water is supplied we have 1,000,000 inhabitants. Liverpool is supplied with water obtained from the red sandstone rock by means of pumping to elevated positions, so that it may gravitate down and enable them to make use of it in case of fires, &c. Three hundred years ago Manchester was supplied from a well in Fountain Street. From this well the water was conveyed in pipes and in an open conduit. Many had to have their water from what were called the "Shudehill Pits." The public conduit was where the new Exchange is now. People used to go and supply themselves by means of buckets and pails from this. Much might be said about the stone-pipe period. Stone pipes were put down to supply the city from this well in Fountain Street, also from the Shudehill pits, and from the ponds in connection with the Infirmary. A good deal of jobbery and corruption was practised on the part of the corporation, or the then governing body of Manchester, and the contractors of the company which supplied the stone pipes. Manchester was afterwards supplied from a well at Gorton, also from the canal at Peak Forest. There was also water obtained from the river Medlock by pumping. I wonder what kind of water we should get from that river now. The water then, though, was so pure that fish were found in it. This water was pumped into reservoirs. By-and-by larger supplies were required, and other sources, further removed from the city, had to be sought. The population was increasing in numbers, and there was a constant increase also in the number of industries carried on which required water in some abundance. Mr. Bateman, the eminent engineer, was employed to secure a site. A good deal depends upon the site selected as the gathering ground of the water, and consequently, amongst other considerations, much attention has to be paid to the geological nature of the soil in the neighbourhood. There needs to be perfect freedom from sewage; none must percolate from the gathering grounds into the reservoirs. Then care has to be taken to avoid expense, and to this end gathering grounds have to be selected of such an elevated position that the water will gravitate down to the city. Longdendale was chosen by Mr. Bateman. The purity of the water at Longdendale takes the second place in the United Kingdom, Loch Katrine being the first. Loch Katrine has one degree of hardness, whereas Manchester has one and a half degrees of hardness at Woodhead, or two degrees in the mains. You know what is meant by water being "hard." You feel as though you were using a sort of refined sandpaper. There is a softness in the Manchester water and a freedom from those salts and chemicals held in solution which give to other water supplies their varying hardness, varying from three to

fifteen degrees. Owing to the hardness of the London water something like 100 tons extra per month of soap have to be used.

Last summer many people asked the question, why we depended upon Longdendale for our water supply, and why we did not make use of the water which can be procured in Manchester and the neighbourhood by sinking down to the sandstone. I may tell you that the sandstone water would not suit Manchester and its industries. I believe it is a fact that many manufacturers have wells of their own, capable of giving them large supplies of water, and yet will not use them, preferring to use the Longdendale water, on account of its softness and greater suitability for their manufactures and industries. I believe I am right in saying that one-third of the Manchester water is used for trade purposes and two-thirds for domestic purposes. In Liverpool much of the water is used for shipping purposes. The resources of Liverpool are becoming smaller and smaller in comparison with their increasing requirements, and they are now going to Vyrnwy for fresh supplies. At present the supplies in the reservoirs of Liverpool water are so reduced that the supply is cut off so much that water can only be obtained for six hours out of the twenty-four. The Liverpool Waterworks Committee have issued a notice restricting the supply to the hours between seven and ten in the morning and three and six in the afternoon. We here are in a very much better position than Liverpool in this respect. This sandstone water of Manchester might perhaps be made available, but it must be remembered that it is more costly to pump water than to get supplies from Longdendale, whence the water comes by the force of gravitation. To mix the sandstone water with the other water would not do. We should, however, have been obliged to resort to something or other in that way had we been driven to find other than the regular sources of supply. The committee of the Manchester Waterworks actually did make a move in this direction. They had nine samples offered them from various wells in the city, but of these nine, only three were found to be sufficiently pure for use in domestic purposes. Consequently they decided not to resort to the use of any of such supplies until actually driven to extremities. In 1865 Manchester and the district only required 8,000,000 gallons per day. We now require 19,000,000 gallons, but in addition to those figures must be reckoned thirteen and a half million gallons which we have to send down the stream daily for compensation purposes. The Longdendale gathering grounds will be seen on the map, where the valley into which the water flows and the river Etherow are shown. It was dammed up and made, as you see, into reservoirs. The area of this drainage ground is 19,300 acres, or thirty square miles. There are 975 acres of water. It is not possible for any sewage from this large area to percolate into

these reservoirs. There are no houses in the vicinity, and only a solitary farmhouse scattered here and there.

The height of Woodhead above the Ordnance level is 782ft. The water is sent on from Rhodes Wood reservoir to Arnfield and Hollingworth by its own gravitation. Here [see map] is the lowest point from which it can gravitate to Godley, and thence to Prestwich. Prestwich reservoir supplies the higher parts of the town in connection with Cheetham Hill. There are reservoirs at Gorton, at Audenshaw, and Denton which supply the lower-lying parts of the city. Godley supplies another part of the city.

The water comes all the way by gravitation. Prestwich, Rhodes Wood, and Godley are at elevations of, respectively, 347ft., 574ft., and 478ft. When Manchester went to Parliament to secure powers to dam up the river Etherow and store the water, the owners of the land on the sides of the river naturally complained, and opposed the granting of such powers. Manchester was constrained to satisfy them by agreeing to send down 17,000,000 gallons per day. This quantity was afterwards reduced to 13,500,000 gallons. There is a measuring basin at Tintwistle by which it can be shown that they receive their full quantity. This basin is a beautiful piece of engineering skill. It is possible to gather something like 25,000,000 gallons per day at Woodhead, besides sufficient for compensation purposes, and that with only the average rainfall, which is 50in. per annum; but we have only required hitherto 19,500,000 gallons, in addition to the 13,500,000 gallons for compensation purposes.

Woodhead reservoir is not now used for supplying water for drinking or for commercial purposes. There are 200,000 gallons of peat mud in that reservoir. When I was speaking to my constituents on the subject of the water supply last October, I told them what was the then condition of the reservoirs. Woodhead, Vale House, and Bottoms were empty, Torside and Rhodes Wood were full, the next two were full, Godley was full. Hollingworth, Arnfield, and Rhodes Wood contain nothing but pure spring water. Woodhead, Vale House, and Bottoms simply supply water for compensation purposes, and were empty. There is a flood-watercourse, which goes along on the side, and which empties Woodhead directly into Vale House and Bottoms. Rhodes Wood, Torside, Hollingworth, and Arnfield are used for domestic and commercial purposes as the water comes on to Manchester.

There are innumerable springs. Each spring, as it is found, is tapped, and the flow conducted into what is called a pure spring-water conduit. There is an arrangement by which this conduit simply takes up the pure spring water and lets the flood water go into Woodhead reservoir. There is a weir which receives the water from Heyden Brook. This pure spring-water conduit goes underneath. The moment any rain or any flood comes it swells the stream at once, and instead of the water falling into

the pure spring-water conduit it escapes over the sill. When the rain or flood subsides the volume is lessened, and at last again nothing but pure spring water comes into the pure-water conduit.

You would perhaps like to know how we get the water from the springs across the reservoirs. There is a very large spring at a place on the banks of the Torside reservoir near where an old paper mill stood, which was tapped. We did not want the water from this spring to go into these reservoirs. As this is rather higher than the water conduit on the other side, pipes were arranged to go under the reservoir and empty their contents into this pure-water conduit. We have several similar syphon pipes. This pure-water conduit collects 13,000,000 gallons a day of pure spring water (this quantity gradually lessened to 2,500,000 during the drought of last summer), and this quantity goes right on to Manchester, without any filtering, except where it is filtered at the end of Torside reserve. We collect in Torside and Rhodes Wood the water of innumerable springs.

Before the water goes to Manchester it passes through this settling tank. The wall is about $1\frac{1}{2}$ ft. lower than the outside walls, so that any suspended matter, such as leaves or grass, which may be in the water falls down, and the water escapes over the bars. The settling tanks hold about 2,000,000 gallons.

We sometimes need to convey water from Torside into Rhodes Wood. It has usually been the practice to open the valves at the bottom, so as to admit the water into the lower reservoir; but this plan takes the mud with the water. The transference is done by means of a syphon, and the result is to transfer all the top clear water and avoid taking any of the mud. This pure-water conduit is watched like a delicate baby. During the night keepers are constantly moving up and down the banks with lamps. They take samples from the pure-water conduit with a glass in order to test the quality. In the case of the least turbidity occurring by any means, the water is turned off into the compensation reservoirs, so that it may not get to Manchester in that state.

At Hollingworth we have houses for the incubation of fish. A year or two ago there were complaints in the papers about our water tasting fishy. The city analyst made some reports, and suggested that fish should be put into the reservoirs to do away with the fishy taste. He suggested that char and trout should be introduced—char for the bottom of the reservoirs and trout for the top. There have been thousands of fish hatched, and at a certain stage of growth turned into the reservoirs. We have since then been free from the fishy odour and taste. This taste arose from a species of snails. The fish act as scavengers. Between each reservoir there are large embankments. The embankment between Torside and Woodhead, owing to the soft nature of the ground, cost £100,000. There had to be a large trench or cutting made into the hills on either side, 163 ft. below

the level of the reservoir, and this had to be filled up with lias lime cement.

There is not much fluctuation in the rainfall at Woodhead, except, of course, in the very driest seasons. 1887 was the driest year for ten years, and our condition at the end of last December was really alarming. I have, however, a note, just received from the superintendent of the waterworks, to the effect that we have now about 4,000,000,000 gallons of water in stock, whereas at the beginning of this year we had only half that quantity.

[Mr. Sherratt explained, by means of a specially-prepared diagram, the relative supplies and requirements of water during the various years from 1855 to 1887.]

We come now to Thirlmere. This is 533ft. above Manchester. Hawes Water is 695ft. above Manchester, and is really the highest water reservoir in the kingdom. At present there are 350 acres of water at Thirlmere. When the Manchester City Council was discussing the question as to the best place to go to for an increase of water supply, three samples of water were sent to as many eminent chemists in the kingdom for report. (See Appendix). Two made reports, but one wrote back and asked the Waterworks Committee if they had not sent, in mistake, a bottle of distilled water. He asked if it was not a joke! The water was so pure as almost to be equal to distilled water! The reports came in to the effect that Thirlmere water was quite equal to Loch Katrine water, showing one degree of hardness. It is intended to enlarge the area of the lake by putting up an embankment. This will cost £25,000. There are 11,000 acres of gathering ground, but they are of a very different strata to that of Longdendale, which is gritstone—a porous stone—and the cause of a good deal of water being lost by absorption. Very little will be lost at Thirlmere, as the watershed is nothing but hard, impervious rock. There are no springs as at Longdendale. The moment the water comes down, it comes right down into the reservoir. There are 17 square miles of gathering ground. The rainfall of Thirlmere is on the average 104in. per annum. At Longdendale it is on the average 50in. There is a great difference indicated by those figures. The compensation water which we shall have to send down will be only 5,500,000 gallons per day. The map shows the intended top level of the water when the embankment is raised 50ft. This embankment will lengthen the lake considerably. When the lake is full to the top level, as intended to be raised, we can get from Thirlmere 50,000,000 gallons per day for 100 days, and this in a time of the greatest drought, before it is reduced to its present level.

The following are the particulars of the tunnels, syphons, aqueducts, &c., in connection with this work now being carried on to bring the water from Thirlmere :—

The aqueduct will commence at the south-east corner of the lake, and at such a level that the surface of the water running into it at the entrance will be about 531 feet above Ordnance datum. The water will be delivered into Prestwich service reservoir, 96 miles distant, at a height of 353 feet above datum, and will therefore have a fall in the length of 178 feet. In the first 22 miles after leaving Thirlmere, the aqueduct passes through the lake district to near Kendal, and in this portion there are 17 tunnels, having an aggregate length of 14,000 yards; 7 syphons, having an aggregate length of 9,000 yards; and the remainder, 15,700 yards, is what is known as "cut and cover." "Cut and cover" means an open trench, with vertical sides, excavated in the rock, about seven feet wide, but broader at the top, to allow of an arch springing from the two sides to form the "cover," the earth being filled in over the arch and the soil replaced. The largest tunnel is 5,225 yards, and the greatest depth of a tunnel below the surface 660 feet. The largest syphon 5,720 yards, and the maximum depth below the gradient 305 feet. The tunnels to the "cut and cover" parts of the aqueduct will be made large enough to convey 50 million gallons in 24 hours. In the valleys—that is, wherever the ground drops below the gradient line—iron pipes will be laid. The iron pipes will be 40in. in diameter, and it will cost two millions sterling to bring the first ten gallons to Manchester. We are now erecting tunnels, and when these are erected we shall attach one 40in. pipe. This will bring down 10,000,000 gallons per day. When we want more water from there it will cost us a half million sterling extra for every 10,000,000 gallons per day. We shall require four or five of these 40in. iron pipes before we can get the 50,000,000 gallons daily. I believe there will be no waterworks built between here and Thirlmere, for we shall be able to supply from that source all the towns on the route. It will be four years before we get the first supply, and the whole scheme for the getting of a supply of 50,000,000 gallons will cost something like £4,000,000.

The sections on the map from Woodhead to Manchester, and from Thirlmere to Manchester, will enable you to see the relative length of both works and the fall from the highest points to the place of delivery in each case. These works, when completed in about three years' time from now, will place Manchester in the proud position of supplying for domestic and other purposes an ample and pure supply of water at a cost, taking all the circumstances into consideration, which is fairly reasonable.

I beg to thank you for your patient attention, and all those who have helped me to obtain the facts to put before you and the diagrams to illustrate the subject.

LARGE TOWN

From the Gas and Water Companies Directory, 1888, edited by Chas. W.

Place.	Date of Formation.	Total Share Capital paid up.	Dividends.	Total Loan Capital issued.	Lessee, Owner, or Corporation.	Population.	Death Rate.
Ashton-u-LyneStalybridge and Dukinfield District.	1870	£ ..	..	£ 652,056	The A., S., & D. Joint Committ.	135,000	..
Birmingham	1875	..	..	1,980,412	Corporation, 1875	560,000	..
Ditto (S. Staffordshire) ..	1853	680,431	5	Debents.	The Company	546,515	..
Blackburn (Lancashire) ..	1845	..	..	662,000	Cor., 1875	115,000	23.9
Bolton	1824	£ 766,270	..	676,300	Cor., 1847	240,000	23.12
Bradford (Yorkshire)	1773	..	..	2,247,310	Cor., 1854	400,600	19.1
Bury (Lancashire)	1838	195,326	..	185,418	Cor., 1872	135,000	..
Halifax (Yorks)	1823	..	..	650,000	Cor., 1848	150,000	..
Hanley	1846	245,000	6	65,000	..	215,000	18.01
Hull	1843	..	..	226,000	Cor., 1843	200,000	..
Lancaster	1852	..	..	87,000	Cor., 1880	30,000	20.17
Leeds	1852	..	..	1,465,000	Cor., 1852	340,000	..
Leicester	1847	..	..	497,780	Cor.,	160,000	..
Liverpool	1847	..	..	3,250,000	Cor., 1847	750,000	..
* London	1619	10,641,940	5 to 10 ¹	2,795,540	* See note	5,368,729	19.0
Manchester	1851	..	..	3,122,789	Cor., 1847	900,000	27.27
Newcastle-on-Tyne	1845	741,302	5, 5 ¹ / ₂ , & 8	191,525	..	400,000	..
Nottingham	1707	..	..	650,000	Cor., 1880	265,000	18.9
Oldham	1826	..	..	594,900	Cor., 1853	192,000	..
Preston	1853	..	..	323,000	Cor., 1854	100,000	..
Sheffield	1830	..	..	..	Cor., 1888	300,000	..
Sunderland	1846	540,415	5 & 9	..	..	265,000	..
Burnley .....	..	..	..	90,000	Cor.,	60,000	..
Cardiff	1850	..	..	480,000	Cor., 1879	135,000	20.0
Belfast	1840	..	..	550,568	Cor.	240,000	..
Dublin	1861	..	..	559,600	Cor.,	330,000	31.0
Dundee	1869	..	..	759,275	Cor., 1869	180,000	..
Edinburgh	1819	414,000	..	723,030	Cor., 1870	370,400	..
Glasgow	1859	..	..	2,290,270	Cor., 1855	811,000	..
Beyrout (Syria)	1873	400,000	9	144,500	17, King's Arms Yard, E.C.	90,000	..
New York .....	..	..	..	..	..	1,206,299	..
Monte Video	1879	350,200	3 ¹ / ₂	270,200	61, Moorgate St., E.C.	104,500	..
Paris .....	..	2,100,000	..	..	..	2,256,306	..
St. Petersburg	1874	200,000	6 & 7	59,630	63, Queen Victoria St., E.C.	200,000	..
Shanghai	1880	132,000	5	..	60, Gracechurch St., E.C.	165,000	25.6
Cincinnati	1839	..	..	..	..	260,000	..

* Chelsea Co., 1723; East London, 1688-1809; Grand Junction, 1811; Kent, 1809; Lambeth, a Lowest charge 10s. per quarter. b Domestic, special and

WATER SUPPLY.

Hastings, and Waterworks Statistics, 1888, by C. W. Hastings, and other sources.

Source of Supply.	Character of Water.	Quantity Raised per Annum.	Assessment Charge.	Price per 1,000 Gallons.	If supplied by Meter.	If Constant Service.
Drainage area: Swineshaw Brook and Greenfield	..	Gallons. 1,450,000,000	R. or gross Annual value poor rate	10d. to 1/8	Trade	C
Deep wells and streams....	..	4,300,000,000	R.	6d. to 1/4	"	C
Red sandstone .....	..	2,019,295,861	A.	1s. 2d.	"	C
Streams	2-3% of hardness	1,200,000,000	Rateable value ..	6d. to 2s. 6	"	C
Hills.....	Soft	2,010,000,000	A. or R. R.....	6d. in, 9d. out boro	"	C
Springs and drainage area	Soft	3,650,000,000	R.	6d. to 9d	"	C
Haslingden	Soft	1,200,500,000	A.	7d. to 2s.	"	C
Streams .....	..	7,000,000 per day	R. R.....	6d. to 8d.	"	C
Wells and springs	Excellent ..	1,500,000,000	....	3d. to 8d.	"	C
Wells in the chalk	Hard.....	2,285,000,000	Annual value....	6d. to 1s.	"	C
Springs, north side of Wyre valley	Soft, -09 Clarke's scale	2,000,000 per day	Annual value....	6d., 9d., & 1s.	"	C
Washburn watershed.....	..	2,950,000,000	Annual value, 4 to 7 1/2 %	..	"	..
Gathering grounds and storage	..	1,163,000,000	Annual value, 4 1/2 to 6 1/2 %	6d. to 10l.	"	C
Catchment area and wells..	..	5,850,000,000	Rateable valve, 2d. to 1/3 in £	7d. & 9d.	Trade	C
Rivers Thames, Lea, wells, springs	Very pure (?) soft	62,883,000,000	Various	6d. to 1/6	"	partly
Longleudale valley, Woodhead, millstone grit	Naturally soft	20,000,000 per day	Various c	4-85d. to 2s.	"	C & h. pres.
Drainage of pastoral districts, &c.	..	4,500,000,000	Gross R.	5d. to 1/2	"	C
Deep wells in the new red sandstone	Medium hardness	2,000,000,000	3 & 5 1/2 % annual on rental	6d. to 9d.	"	C
Rivers Medlock, Roach, and Tame	..	1,533,000,000	Gross R.	6d. to 2s.	"	C
Whitewell and Longridge Fells	..	1,150,000,000	A.	4 1/2d. to 1s.	"	C
Inland gathering grounds	..	1,800,000,000	R.	6d. to 10d.	"	C
....	"	..
Gathering grounds .....	..	450,000,000	A.	8d.	"	C
Dolomite conglomerate beds of old red sand & limestone	Old wks. lrd. new soft	..	Rateable value ..	1/6 & sliding scale	"	C
Drainage area	9° of hardness	..	Rateable value ..	..	"	C
River Vartry	Pure and soft	5,475,000,000	10d. in the £....	6d.	"	C
Loch Linrathen and Wormit Springs	..	7,900,000 per day	1/2 1/2 in the £	7d.	"	C
Pentland and Moorfoot Hills	..	15,000,000 per day	8 1/2 d. in the £	6d.	"	C
Loch Katrine and Gabals..	Soft	41,000,000 per day	2-91% and 4-58 % on R.	4d.	"	C
Limestone mountains	10° of hardness	300,000,000	Various	Various	"	C
....	..	103,000,000	....	13 3/8 cents	"	C
River St. Lucia.....	..	per day 487,500,000	....	..	per ar.	C
....	..	88,000,000 per day	....	..	"	..
River Neva .....	.. (	900,000,000	Annual value..	1/2d. to 6d.	Trade	partly C
Hwang Poo river.....	Soft	1,350,000,000	....	7 1/2 d.	"	..
Pump .....	..	..	....	..	"	..

1785; New River, 1619; Southwark and Vauxhall, 1845; and West Middlesex Co, 1866.
trade. c Annual R. R. within city; annual val. beyond.

APPENDIX TO MR. SHERRATT'S ADDRESS ON WATER SUPPLY
TO LARGE TOWNS.

DR. ANGUS SMITH'S ANALYSIS OF THE LONGDENDALE WATER AT WOODHEAD.

	In Grains.
Sulphate of Lime	1·743
Sulphate of Magnesia	·661
Chloride of Magnesium.....	·555
Chloride of Sodium	·499
Iron Peroxide	·145
Organic Matter	·840
Total Residue	4·515
Nitrates	None
Hardness in Reservoir	1·53
Hardness in Mains	2·00

THIRLMERE WATER.

Analysis of Sample of Water sent by J. F. Bateman, Esq., February 13th, 1877.

	Sample.		Comparison with			
	Manchester.		Glasgow.			
	Grains per Gallon.	Parts per Million.	Grains per Gallon.	Parts per Million.	Grains per Gallon.	Parts per Million.
Total Solids	1·45	20·71 ...	4·70	67·14 ...	2·30	32·85
Chlorine..	0·40	5·71 ...	0·70	10·00 ...	—	—
Free Ammonia	—	— ...	0·0021	0·03 ...	—	—
Albuminoid Ammonia	0·0049	0·07 ...	0·0056	0·08 ...	0·0056	0·08
Nitrogen as Nitrates and Nitrites }	0·0247	0·35 ...	0·017	0·24 ...	0·0222	0·317
Total Hardness.....	0·5	— ...	2·0	— ...	—	—
Permanent Hardness..	0·5	— ...	2·0	— ...	—	—

Colour.—The sample is of better colour and clearer than Manchester Corporation water. It is also free from lead and copper.

(Signed) HENRY E. ROSCOE, F.R.S.

Royal Institution, Manchester, March 3rd, 1877.

J. F. Bateman, Esq.,

Sir,—We have made a careful analysis of the sample of water which you sent to our Laboratory, and have found it to contain:—

	Parts per 100,000.
Total Solid Matter	2·88
Organic Matter, combined Water, &c.	1·40
<hr/>	
Total Saline Matter	1·48
Free Ammonia	·02
Albuminoid Ammonia	·0189
Nitrates	Absent
Total Hardness	·897
Permanent Hardness	·897

The above figures show that the water is exceedingly soft, and well adapted for drinking, domestic, and manufacturing purposes. The sample is free from animalcule and vegetable life.—We remain, your obedient servants,

(Signed) CRACE CALVERT AND THOMSON.

Royal College Chemistry, South Kensington Museum,
March 16th, 1877.

The Mayor and Corporation of Manchester.

Gentlemen,—Herewith I enclose results yielded on analysis by a sample of water from Thirlmere sent here on your behalf by Mr. J. F. Bateman, C.E., F.R.S.

The water is palatable, wholesome, and of most excellent quality for dietetic purposes. It is also extremely soft, and therefore well adapted for manufacturing purposes and for washing. It is fully equal in all respects to the justly celebrated Loch Katrine water.—I am, gentlemen, your obedient servant,

(Signed) E. FRANKLAND.

RESULTS OF ANALYSIS EXPRESSED IN PARTS PER 100,000.

Total Solid Matters.....	2·36
Organic Carbon.....	·172
Organic Nitrogen	·017
Ammonia	·008
Nitrogen as Nitrates and Nitrites.	—
Total combined Nitrogen	·024
Chlorine.....	·71
Temporary Hardness.....	—
Permanent Hardness	·9
Total Hardness	·9
Turbid.....	—

RESULTS OF ANALYSIS EXPRESSED IN PARTS PER 100,000.*

WATER FROM	Total Solid Impurity.	Organic Carbon.	Organic Nitrogen.	Ammonia.	Nitrogen as Nitrates and Nitrites.	Total combined Nitrogen.	Previous Sewage or Animal Contagion.	Chlorine.
Queenwood	29.54	.044	.005	—	.541	.546	5090	2.20
Glasgow (Loch Katrine).....	3.20	.192	.008	.001	—	.009	—	.79
Lancaster (Millstone Grit)...	4.53	.129	.022	.001	—	.023	—	.99
Thirlmere.....	2.66	.194	.004	.003	.002	.008	—	.52
London (West Middlesex, filtered water).....	26.40	.125	.021	—	.155	.176	1230	1.45
Liverpool (Red Sandstone Well).....	26.40	.020	.020	—	.416	.436	3840	2.63
Bath (Spring Water from the Oolite)	30.76	.009	.004	—	.130	.134	980	1.46

Hardness.

	Temporary.	Permanent.	Total.
Queenwood.....	16.1	6.3	22.4
Glasgow (Loch Katrine)	—	—	1.0
Lancaster (Millstone Grit)	—	—	.9
Thirlmere	—	—	.7
London (West Middlesex, filtered water).....	—	—	19.3
Liverpool (Red Sandstone Well).....	4.0	9.6	13.6
Bath (Spring Water from the Oolite).....	21.8	5.4	27.2

* The Thirlmere Water Scheme, by Jas. Mansergh, M.I.C.E., F.G.S. Shaw and Co., London, 1873.

AREA, CAPACITY, AND HEIGHT OF THE RESERVOIRS.

Name of Reservoir.	Area of Reservoir. Acres.	Capacity of Reservoir. Gallons.	Depth of Reservoir. Feet.	Height of Top Water Level above Ordnance Datum. Feet.	Inches.
Woodhead.....	135 ...	1,181,000,000	71 ...	782 ...	—
Torside	160 ...	1,474,000,000	84 ...	651 ...	3
Rhodes Wood	54 ...	500,000,000	68 ...	574 ...	6
Vale House	63 ...	343,000,000	40 ...	503 ...	—
Bottoms	50 ...	407,000,000	48 ...	486 ...	—
Arnfield	39 ...	209,000,000	52 ...	540 ...	3
Hollingworth	13 ...	73,000,000	52 ...	554 ...	9
Godley	15 ...	61,000,000	21 ...	478 ...	—
Denton, No. 1	7 ...	30,000,000	20 ...	321 ...	6
„ No. 2	6 ...	23,000,000	20 ...	321 ...	6
Audenshaw, No. 1	80 ...	528,000,000	27 $\frac{1}{2}$...	340 ...	—
„ No. 2	69 ...	371,000,000	22 $\frac{1}{2}$...	323 ...	—
„ No. 3	102 ...	542,000,000	22 $\frac{1}{2}$...	323 ...	—
Gorton, Upper.....	34 ...	123,000,000	26 ..	259 ...	—
„ Lower.....	23 ...	100,000,000	29 ...	244 ...	—
Prestwich.....	4 $\frac{1}{2}$..	20,000,000	22 ...	347 ...	—
Total	854 $\frac{1}{2}$...	5,985,000,000			

(Signed) T. H. G. BERREY, A.I.C.E.

The following table, from Mulhall's "Progress of the World," 1880, is interesting :—

WATER SUPPLY OF SOME ENGLISH AND FOREIGN CITIES.

City.	Million Gallons Daily.	Gallons per Inhabitant.	Cost of Works. £	Cost per Inhabitant in Shillings.
London	121	28	8,888,000	44
New York	48	48	2,500,000	50
Paris	34	16	2,100,000	40
Glasgow.....	26	48	1,550,000	60
Manchester	11	25	1,320,000	60
Liverpool	11	24	1,650,000	72
Boston (U.S.)	10	50	600,000	60
Dublin	7	24	610,000	37
Hamburg	5	22	170,000	15
Edinburgh	5	22	510,000	40

In an article on Croton Water, by W. E. Rideing, in *Scribner's Magazine* for October, 1877, the following figures are given in reference to the New York Water Supply. (The article is fully illustrated, and is very interesting.)

Daily supply, 104,000,000 gallons—100 gallons to each inhabitant.

The storage capacity is as follows :—

Fifth Avenue Reservoir	20,000,000 gallons.
Central Park "	38,000,000 "
" " (the new one)	1,000,000,000 "
Boyd's Corner Dam (303 acres)	3,369,000,000 "
A total of.....	4,427,000,000 "

Exhibition Rats.—A writer in the *Newcastle Daily Chronicle*, says: "There is no harm now in mentioning the fact that amongst the visitors to the late Newcastle Exhibition were a tremendous number of rats, which fixed their abode there, and have resolutely refused to leave, even now that the place is closed to the public. Where they all came from goodness knows, but they have turned up in large numbers at many parts of the building as the men have been removing the exhibits, and their suspected presence led, on Friday last, to an exciting hunt in the North Gardens. A special ratcatcher was there with several assistants, and the game of annihilation commenced at eleven in the forenoon and was not suspended until about seven at night. There was rare and exciting sport, and the old familiar school rhyme of "see how they run" might have been sung by the company in all truth. Scores of rats were discovered underneath the flooring of a building in the gardens, whilst beneath the remains of the Indo-Chinese Café quite a swarm was unearthed, much to the delight, doubtless, of a smart terrier dog, who seemed to revel in the fun that was before him, while those who had laid nets for the capture of the rodents were simply in ecstasies. With an instinct characteristic of them, the rats had made their abode principally underneath the boards of the buildings where eatables were sold, and there, while visitors were revelling in the enjoyment of pork pies, sausage rolls, and penny buns, they enjoyed, it may be presumed, many a feast from the crumbs that fell from the rich men's tables. It has gone hard with the Exhibition rats since the palace on the Moor was closed; it will go still harder with them when the time for demolition of the building and the restoration of the grounds has arrived. Already, indeed, as Friday's proceedings prove, the era of the extirpation has set in."

THE ARABS IN CENTRAL AFRICA.—(*See Maps.*)

By MR. JAMES STEVENSON, F.R.S.E., F.R.G.S.

[This address was prepared by Mr. Stevenson for delivery at the Conference (May 18th, 1888), and 250 copies were kindly given to the Society for use at that meeting. Mr. Stevenson has allowed the Society to use his Map, from which the small one is constructed. He has also given the Society the Map in the Journal illustrating this paper.]

THE recent attacks by Arabs at the north end of Lake Nyassa have excited a strong feeling in this country, and it is a fitting time to call the attention of the public to the great Arab invasion of Central Africa, which threatens to destroy the industrial population of the continent.

In 1871 Livingstone found himself confronted by Arabs in various parts, and especially at Nyangwe he witnessed the commencement of a system of wholesale massacre. From this point in particular the tribes around were attacked. In a map published in 1883 I showed the extent to which these ravages had extended, along with the other regions throughout Central Africa in which slave-hunting had been destroying the population more or less.

During the last five years the information that has come to hand shows that the ravages of the Zanzibar Arabs have extended in area and intensity amongst some of the most advanced races of the interior, so that countries lying west of the great lakes have been destroyed over an area of one thousand miles in length by four hundred in breadth. The devastation extends as far as to the countries where the population was previously thinned by the West Coast slave trade, so that there is a near approach to the time when the nations of Europe may find that there is but a very small industrial population remaining in these parts.

Proceedings of the Royal Geographical Society, 1887, p. 640.—Dr. Wolf says of Lunda, &c. (see map): "The country from the coast to the Kassai is thinly populated, though all the villages I passed through showed a great number of healthy-looking children. This will be understood if we remember that this region has for centuries provided Angola and the foreign market with slaves."

From the central regions slaves have recently been drawn to fill up the blanks created by earlier slave raids near the East Coast, but the source of supply is coming to an end, both from

the exhaustion of the centre and quite recently from the Arabs having in a few places begun to cultivate by slave labour the lands from which the inhabitants had been expelled.

Referring to the maps, I quote information from the various travellers who have, within the last five years, been witnesses of what has been going on. In order to give a general idea of what passes, I begin by quoting passages descriptive of the scenes which accompany the ravages of the country about Stanley Falls.

The Congo and the Founding of its Free State. By H. M. Stanley (Vol. II., p. 140).—"Our guide, Yumbila, was told to question them as to what was the cause of this dismal scene, and an old man stood out and poured forth his tale of grief and woe with an exceeding volubility. He told of a sudden and unexpected invasion of their village by a host of leaping, yelling men in the darkness, who dinned their ears with murderous fusilades, slaughtering their people as they sprang out of their burning huts into the light of the flames. Not a third of the men had escaped; the larger number of the women and children had been captured and taken away, they knew not whither. . . ."

P. 144.—"We discovered that this horde of banditti—for in reality and without disguise they were nothing else—was under the leadership of several chiefs, but principally under Karema and Kibunga. They had started sixteen months previously from Wane-Kirundu, about thirty miles below Vinya Njara. For eleven months the band had been raiding successfully between the Congo and the Lubiranzi, on the left bank. They had then undertaken to perform the same cruel work between the Biyerré and Wane-Kirundu. On looking at my map I find that such a territory within the area described would cover superficially 16,200 square geographical miles on the left bank, and 10,500 miles on the right, all of which in statute mileage would be equal to 34,700 square miles, just 2,000 square miles greater than the island of Ireland, inhabited by about 1,000,000 people.

"The band when it set out from Kirundu numbered 300 fighting men, armed with flint locks, double-barrelled percussion guns, and a few breech-loaders; their followers, or domestic slaves and women, doubled this force. . . . Within the enclosure was a series of low sheds extending many lines deep from the immediate edge of the clay bank inland, 100 yards; in length the camp was about 300 yards. At the landing place below were 54 long canoes, varying in carrying capacity. Each might convey from 10 to 100 people. . . . The first general impressions are that the camp is much too densely peopled for comfort. There are rows upon rows of dark nakedness, relieved here and there by the white dresses of the captors. There are lines or groups of naked forms—upright, standing, or moving about listlessly; naked bodies are stretched under the sheds in all positions; naked legs innumerable are seen in the perspective of prostrate sleepers; there are countless naked children—many mere infants—forms of boyhood and girlhood, and occasionally a drove of absolutely naked old women bending under a basket of fuel, or cassava tubers, or bananas, who are driven through the moving groups by two or three musketeers. On paying more attention to details,

I observe that mostly all are fettered; youths with iron rings around their necks, through which a chain, like one of our boat anchor chains, is rove, securing the captives by twenties. The children over ten are secured by these copper rings, each ringed leg brought together by the central ring, which accounts for the apparent listlessness of movement I observed on first coming in presence of this curious scene. The mothers are secured by shorter chains, around whom their respective progeny of infants are grouped, hiding the cruel iron links that fall in loops or festoons on their mammas' breasts. There is not an adult man captive amongst them. . . ."

P. 148.—"The slave traders admit they have only 2,300 captives in this fold, yet they have raided through the length and breadth of a country larger than Ireland, bringing fire and spreading carnage with lead and iron. Both banks of the river show that 118 villages and 43 districts have been devastated, out of which is only educed this scanty profit of 2,300 females and children, and about 2,000 tusks of ivory! The spears, swords, bows, and the quivers of arrows show that many adults have fallen. Given that 118 villages were peopled only by 1,000 each, we have only a profit of 2 per cent, and by the time all these captives have been subjected to the accidents of the river voyage to Kirundu and Nyangwe, of camp life and its harsh miseries, to the havoc of smallpox, and the pests which miseries breed, there will only remain a scant 1 per cent upon the bloody venture.

"They tell me, however, that the convoys already arrived at Nyangwe with slaves captured in the interior have been as great as their present band. Five expeditions have come and gone with their booty of ivory and slaves, and these five expeditions have now completely weeded the large territory described above. If each expedition has been as successful as this the slave-traders have been enabled to obtain 5,000 women and children safe to Nyangwe, Kirundu, and Vibondo, above the Stanley Falls. This 5,000 out of an annual million will be at the rate of a half per cent, or five slaves out of 1,000 people. . . . This is poor profit out of such large waste of life, for originally we assume the slaves to have mustered about 10,000 in number. To obtain the 2,300 slaves out of the 118 villages they must have shot a round number of 2,500 people, while 1,300 men died by the wayside through scant provisions and the intensity of their hopeless wretchedness. How many are wounded and die in the forest or droop to death through an overwhelming sense of their calamities we do not know; but if the above figures are trustworthy, then the outcome from the territory with its million of souls is 5,000 slaves, obtained at the cruel expense of 33,000 lives! And such slaves! They are females or young children who cannot run away, or who with youthful indifference will soon forget the terrors of their capture! Yet each of the very smallest infants has cost the life of a father, and perhaps his three stout brothers and three grown-up daughters. An entire family of six souls have been done to death to obtain that small, feeble, useless child! These are my thoughts as I look upon the horrible scene. Every second during which I regard them the clink of fetters and chains strikes upon my ears. My eyes catch sight of that continual lifting of the hand to ease the neck in the collar, or as it displays a manacle, exposed through a muscle being irritated by its weight or want of fitness. My nerves are offended with the rancid effluvium of the unwashed herds

within this human kennel. The smell of other abominations annoy me in that vitiated atmosphere. For how could poor people, bound and riveted together by twenties, do otherwise than wallow in filth ! Only the old women are taken out to forage. They dig out the cassava tubers and search for the banana ; while the guard, with musket ready, keenly watches for the coming of the revengeful native. Not much food can be procured in this manner, and what is obtained is flung down in a heap before each gang to at once cause an unseemly scramble. Many of these poor things have been already months fettered in this manner, and their bones stand out in bold relief in the attenuated skin, which hangs down in thin wrinkles and puckers. And yet who can withstand the feeling of pity so powerfully pleaded for by those large eyes and sunken cheeks ? ”

This sufficiently describes the general situation. Coming south of the great forest belt we have the following notices of observations made by recent German travellers to the east and west of Nyangwe, in two of the richest and best peopled regions of the continent, which have been wholly destroyed, and also in a district south of Nyangwe, where the process was beginning.

Mr. Wissmann in 1881 came through the country of the Basonge, in the very heart of the continent, about the 5th parallel, south latitude, and says :—

“They lived in beautiful villages, miles in length, cultivated the land, and excelled in the manufacture of cloth, pottery, iron articles, and wood carving. To the east of these tribes, however, I found that, in consequence of a recent inroad of the Arabs of Nyangwe, the villages had been deserted. The Basonge have never yet seen an Arab, nor heard the report of a gun, but I am afraid their fate is sealed.”

On his second journey—

Proceedings of the Royal Geographical Society, 1887, p. 776.—“From the 28th December, 1886, to the 23rd January, 1887, the caravan marched through the region of the gigantic villages met with on the first journey. Now the district was entirely depopulated. War and smallpox had entirely devastated the country. The want of food was so great that Wissmann lost 80 men from hunger and smallpox on the journey from the Sankuru to Nyangwe. In the latter place he found conditions also very much changed, in consequence of the events at Stanley Falls. The bearing of the Arabs towards the traveller was decidedly hostile.”

Proceedings of the Royal Geographical Society, 1887, p. 221.—“Dr. Lenz left Kasonge on June 30th, and traversing the plateau between that and Tanganyika, reached Mr. Hore’s station on Kavala Island on August 7th. He found much of the route studded with recently-founded Zanzibar villages established by the Arab traders, the natives having been compelled to retreat into the forests and remote mountains ”

Proceedings of the Royal Geographical Society, 1887, p. 190.—“Ujiji was entered on August 15th. Here Dr. Lenz discovered that on account

of the warlike raids of the Arabs and the excitement in Uganda, it would be impossible for him to push northwards to Emin Pasha, as was his original intention."

Proceedings of the Royal Geographical Society, 1887, p. 643.—Dr. Ludwig Wolff says (1886, February): "Between Katshitsh and the Batondoi, I met the powerful chief Zappu Zapp, who as a slave hunter is the curse of the country between the Lubilash and the Lomami. Nearly all his men were armed with percussion guns, which he gets at Nyangwe from the Arabs, in exchange for slaves and ivory. The other tribes are still armed with bows and arrows. This was the furthest point to the west whence the trade all goes to Zanzibar. Several of Zappu Zapp's men, also his sons, spoke the Swahili language. Zappu Zapp wanted guns and powder from me. He did not care for anything else. When I refused to accept his slaves and ivory he resolved to take the 'En Avant' by force overnight."

Proceedings of the Royal Geographical Society, 1887, p. 776.—"Wissman found that in the region between the Lomami and the Sankuru the conditions of trade have completely altered since 1884. Now glass beads, arms, and powder form the chief articles of barter, having replaced the earlier cowry shells."

One state, that of Rua, seemed to be holding out; but to the south of it, in the rich mining region of Katanga, we have these notices by Reichard, a German, and Capello and Ivens, Portuguese travellers.

Proceedings of the Royal Geographical Society, 1885, p. 606.—"On October 27th they (Dr. Böhm and Herr Reichard) crossed into the kingdom of a powerful chief named Msiri, who had been waging a war against Urua during the last six years, in the course of which he had advanced as far as the Kikondia Lake. He was even then 'in the field' beleaguering a town named Katapena, and it was there the explorers joined him on January 20th, 1884. . . . When Msiri at length returned to his capital (Kimpatu, in Unkea), it became evident that he aimed at the travellers' destruction. Tired of interminable delays, Herr Reichard at length started on September 25th with 'colours flying and drums beating.' A hundred and fifty natives who sought to prevent his passage of the Lufira were easily put to flight, but thenceforth his progress became a continual struggle against cold, wet, and hunger."

Proceedings of the Royal Geographical Society, 1887, p. 318.—Capello and Ivens "were now within the limits of the empire which Msiri, a native of Unyamwezi (called Ukalaganja, or Garaganza, by the western tribes), has carved himself out of the ancient dominions of the Kazembe, and which extends from Lake Kikonja and Urua in the north to the Mushinga Mountains in the south, and from the Lualaba eastward to the Luapula. This vast region is by no means devoid of natural wealth, but it has been depopulated by war, and the traveller sometimes spends days on the march without encountering a single human being. . . . The 'Kimpata' of Msiri, in the district of Bunkea, is approached

through a perfect labyrinth of narrow lanes, planted with euphorbias, and decorated at intervals with trophies of human skulls, every one of which has a history attached to it, proclaiming the detestable cruelty of this parvenu among African rulers. Permission to proceed to Kazembe's town, or even to visit the western shore of Lake Moero, having been refused, on the ground of the unsettled state of the country, Captain Ivens rejoined his companion at Ntenke's, and they resolved to make their way to the Luapula."

We are now well down to the region west of Lake Nyassa. Of the country north of Lake Bangweolo we have from Reichard and Giraud a harrowing picture of desolation. Giraud also tells that it is the boast of the people of Bemba, among whom it may be remembered that Livingstone encountered the first Arabs who had penetrated to the centre of Africa, that they had exterminated the Babisa. This was an important tribe, who sometimes traded as far as the East Coast of Africa, but have latterly been carried thither in captivity by way of the ferries of Nyassa by the Arabs of Kota Kota. Coming nearer the scene of the late disturbances, we have the following description by Mr. Moir, of the African Lakes Company, of the destruction of a people whom the London Missionary Society had hoped to evangelise.

Scottish Geographical Magazine, April, 1885, p. 110.—Paper by F. M. Moir.—"Within 20 miles of this station, while we were on our march from Nyassa to Tanganyika, the fertile valley of the Lofu was the scene of a terrible slave raid. An Arab, Kabunda, who had been settled there for about ten years, having many houses and slaves, determined to go to Zanzibar with his ivory. So he picked a quarrel with Katimbwe, the chief, and took all his cattle; then organized a sudden raid throughout all the valley, and every man, woman, and child who could be found was seized and tied up. Very few managed to escape him or his keen hunters, and a caravan was made up for the coast; but the smiling valley that had been known as the Garden of the Tanganyika, from its fertility and the industry of its people, now silent and desolate, was added to that already long stretch of hungry wilderness through which we had passed. . . . To deal with, so far (Kabunda) was the polished gentleman. He told us he was going on next morning, and would pass our tents; his caravan was about 3,000 strong, two detachments had gone by a road to the back of us, as could be seen by the tracks in the grass. Accordingly, we were up betimes to see them pass.

"First came armed men, dancing, gesticulating, and throwing about their guns, as only Arabs can do, to the sound of drums, panpipes, and other less musical instruments. Then followed, slowly and sedately, the great man himself, accompanied by his brother and other head men, his richly caparisoned donkey walking along near by; and surely no greater contrast could be conceived than that between this courteous, white-robed Arab, with his gold-embroidered joho, silver sword and daggers, and silken turban, and the miserable swarm of naked squalid human beings

that he had wantonly dragged from their now ruined homes in order to enrich himself.

"Behind the Arab came groups of wives and household servants, laughing and talking as they passed along, carrying the camp utensils and other impedimenta of their masters. After that the main rabble of the caravan, the men armed with guns, spears, and axes. Ominously prominent among the loads were many slave sticks, to be handy if any turned refractory or if any likely stranger were met. Mingling with and guarded by them, came the wretched, over-burdened, tied-up slaves. The men who might still have had spirit to try and escape were driven, tied two-and-two, in the terrible goree or taming stick, or in gangs of about a dozen, each with an iron collar let into a long iron chain, many even so soon after the start staggering under their loads.

"And the women! I can hardly trust myself to think or speak of them—they were fastened to chains or thick bark ropes; very many, in addition to their heavy weight of grain or ivory, carried little brown babies, dear to their hearts as a white man's child to his. The double burden was almost too much, and still they struggled wearily on, knowing too well that when they showed signs of fatigue, not the slaver's ivory, but the living child would be torn from them and thrown aside to die. One poor old woman I could not help noticing. She was carrying a biggish boy who should have been walking, but whose thin weak legs had evidently given way. She was tottering already; it was the supreme effort of a mother's love—and all in vain; for the child, easily recognizable, was brought into camp a couple of hours later by one of my hunters, who had found him on the path. We had him cared for; but his poor mother would never know. Already, during the three days' journey from Liendwe, death had been freeing the captives. It was well for them; still we could not help shuddering, as, in the darkness, we heard the howl of the hyenas along the track, and realized only too fully the reason why. Low as these poor negroes may be in the moral scale, they have still strong maternal affection, and love of home and country."

For ninety miles along the south coast of Tanganyika we have the entire population swept away, and in the adjoining fertile country of Fipa the Arabs are now in great force.

During the last year letters from the Mission Stations expressed apprehensions, on account of the presence near Lake Nyassa of the Arab Kabunda, of whose doings at Lake Tanganyika Mr. Moir's description has been given. The Arab traders had congregated in greater numbers at the Nyassa end of the road, on account of the small steamer of the African Lakes Company having been for some time detained on account of disturbances near Bandawe. The killing first of one chief, and then when by the mediation of the agent of the Company no reprisals were made, the killing of another, indicated a desire to find an excuse for seizing the villagers to carry their ivory to the coast. The reprisals on the women belonging to the Arabs furnished a colourable pretext for the seizure of the fifteen hundred, who were afterwards rescued by the defenders of Karonga.

Another motive is indicated in the following extract from the letter of the Rev. Mr. Scott, of Manchester, to the *Manchester Guardian* :—

Manchester Guardian, Feb. 25, 1888.—From a letter of the Rev. Mr. Scott.—“It is impossible to tell with accuracy the number that have been carried off by Arabs as slaves, but a large number of women and children are known to be in their hands. That the fate of the majority of the former was not one of slavery only we have too much reason to fear. Lest it should be thought that I exaggerate, I will tell your readers that the leader of this ruffianly band, a Belooch from Zanzibar, had the blackguard audacity to inform the Rev. J. A. Bain, M.A., and Mr. Monteith, in an interview they had with him before the massacre, what would be done with the ‘young Wa-Nkonde girls,’ accompanying his atrocious statement with the foulest language. And there is no doubt that most were abandoned to the Ruga-ruga and other ruffians who formed his force, whose only pay consists in uncontrolled licence of this kind, with a very small proportion of the booty captured.”

The question is now fully brought before us—Are the atrocities of the Arab invasion now to be extended to Lake Nyassa? At various points besides the north end the invaders are ready, and have been tentatively adding to their old station at Kota Kota one near the Bandawe Mission and besides Losewa and Makanjira's they have been aggressive near Blantyre. The Rev. Mr. Scott, head of the Blantyre Mission, in regard to this district says: “The Arab slave trade is making frightful progress. Caravans of Arabs are pouring in—for trade? No! Hardly a bale of cloth goes up country from the East Coast. It is guns and powder—not even spirits. It is simply slaughter, and slaughter of thousands, and the desolation of the fairest lands—lands where the natives were at peace, where industry and thrift and happiness ruled; where to get through one village you might start in the early morning and not pass out of it till the sun was half-way down, journeying straight on; and these are now desolate. Fresh routes are opening up to them, and the desolation is spreading. It is not slave trade; it is ruthless massacre of the most barbarous type. There is actually a new Arab village near the south end of Lake Nyassa.”

On the other hand, the forces in favour of order, if properly used, are much stronger on Lake Nyassa, and can be readily augmented.

For the purposes of defence, the coasts of Lake Nyassa are within easy reach. The steamers of the Company would set down reinforcements within three weeks after leaving the East Coast, and in favourable circumstances, for they pass rapidly through the malarious district, and the land journey past the rapids is over high and healthy land.

There are thus no physical difficulties, but only those which arise from the present action of Portugal.

The following quotations show the position twelve years ago* :—

REMARKS ON MATTERS CONNECTED WITH THE APPROACH
BY THE ZAMBEZI TO NYASSA, REQUIRING THE ATTEN-
TION OF GOVERNMENT.

When the Scottish missions proceeded to occupy the Shiré Valley and Lake Nyassa, arrangements were proposed that their communications should be kept up by their employing vessels to enter the Kongone or Luabo mouths of the Zambezi from the ocean, and by smaller vessels on the rivers to connect that navigation with that of the steamer placed on Lake Nyassa. The original discovery and navigation of these river communications by agents of the British Government seems clearly made out in Livingstone's "Missionary Travels," pp. 640 and 665, "Zambezi," pp. 16, 91. The only exception is about 30 miles of the Zambezi navigation from Mazaro to the entrance to the Shiré, which is also part of the line of water communication between the Portuguese settlements of Quillimane, Mazaro, Senna, and Tette.

The carrying out of this intention was deferred in consequence of the receipt of a letter from Senhor Zagury, intimating that he had had conceded to him by the Portuguese Government the exclusive right of steam navigation between Quillimane, the Luabo mouth of the Zambezi, and Tette. The missions have since used the Portuguese approach by the Quillimane river, which connects itself by a portage of six miles with the Zambezi at Mazaro. That this concession of the Portuguese Government would have been, if carried out, an invasion of British rights hardly admits of doubt, although it was not the part of the mission to contest the matter. But the concession was probably hastily granted, when the passage of the British steamer *Ilala* attracted attention, with the view of keeping the question open, and it is understood to be now withdrawn.

The Portuguese route from Quillimane to Tette above mentioned, as we have said, coincides for 30 miles with the new route from the mouth of the Zambezi to Nyassa, but the Portuguese are very much in the position of a power that has been withdrawing from it, which came about in this way.

The high price of slaves in Brazil, 40 years ago, induced a pretty general sale of the agricultural population connected with their settlements, destroying both their defensive power and their revenues. The Landeens, part of the great Abantu or Zulu Kafir race, which now occupies most of Eastern Africa from the Cape to within five degrees of the equator, have gradually, in the last 30 years, driven them from the south bank of the river. The town of Senna is secured by the payment to the Landeens of an annual tribute or land tax, enforced in case of refusal by occupation and slaughter of the inhabitants. (Livingstone's "Missionary Travels," p. 658 ; "Zambezi," p. 152 ; Fritsch, "Eing. Sud. Africas," p. 494.) The Livingstone Search Expedition found the inhabitants, in 1867, living on the islands of the Zambezi, in consequence of 600 persons

* From "The Civilisation of South-Eastern Africa." By James Stevenson.

having been killed the previous year on account of this and other provocations. The party in the Ilala also found that, in November, 1874, the Landeens had occupied Mazaro, on the north bank, with a slaughter of 200 people, when enforcing the payment of their land tax there. As they also levy dues on the river, and the Portuguese Government has not seen its way during thirty years to prevent their thus treating the whites as a conquered tribe, it would appear to be necessary to consider the position of this race as well as that of the Portuguese in any settlement. The concession of transit duties might be made to the Portuguese on condition of the river from Mazaro to the Shiré being kept open, a task which, judging from British experience of the Kaffirs in South Africa, may involve difficulty and expense. With the Landeens between the mouth of the Zambezi and Mazaro we presume we must deal ourselves.

The next steps were these. In 1877 the revised Portuguese tariff for Mozambique and the East Coast of Africa was issued. This contained the two following clauses:—

“Art. 70. The transit of merchandise from places outside the provinces, and destined by land or water transit for foreign places adjoining Portuguese territory on the north or south, and also for countries situated beyond the confluence of the rivers Shiré and Zambezi, is permitted through the Custom Houses mentioned in Art. 11 on payment of a sole duty of 3 per cent *ad valorem*.”

“The Custom Houses mentioned in Art. 11 are Cabo Delgado, Mozambique, Angoche, Quillimane, Sofala, Inhambane, and Laureço Marques.”

“Art. 84. The taxes of 3 and 1 per cent *ad valorem* which have been collected in the Custom Houses of Mozambique for public works are extinct, the administration being expressly prohibited from reviving these taxes or fixing any other new ones on imports or exports.”

A custom house, in addition to the ports mentioned, was established at the confluence of the Zambezi and Shiré. The present African Lakes Company was accordingly formed, and a steamer was sent out in due course.

The Portuguese have also been active on the south side of the Zambezi in suppressing the Landeens, the native race who occupied so important a position in 1876. This has been done by forces drawn from the other native races, who have been supplied with arms and have acted under leaders generally half-castes. The emigrants from Portugal to the province of Mozambique form hardly an element in the population at present. The revenues of the province have not been equal to the strain upon them, which has been a good deal felt among the official class. This may account for the freedom with which arms and ammunition have recently been sold to the Arabs at Quillimane, and no doubt some revenue as well as profit has been obtained. But, from the remarks of the Rev.

Mr. Scott, quoted above, it would appear that the immediate result is that these banditti are ruining the country just behind the province, which will return into the state of primeval forest when the population is destroyed. It is also worthy of consideration that the abundant supply of arms to this part of the country will probably precipitate the Arab attack upon the middle Zambezi and its tributary the Kafue, which lies next to the country ravaged by Msiri on the other side of the Machinga range. The African Lakes Company, who have steadily refused to sell guns or ammunition to the Arabs, have cause to complain that their peaceable operations should be compromised in this way. The Missions also are placed in circumstances unfavourable to them.

The company had fully equipped itself for conducting its affairs on a more important scale, when the recent block of the rivers occurred. The new river steamer of the company is a stern wheeler, intended to carry 75 tons on a moderate draft. They have also a steamer of considerable size in course of being put together on Lake Nyassa.

It may be added that the company and the missions have expended altogether some £150,000. In pursuance of similar objects a survey was obtained and a road made for about forty-six miles through the rough country north-west of Lake Nyassa, towards Lake Tanganyika, which is reached from that point through an easy country. The road was made by native labour, and the traffic on it was at first worked by parties hired by the company from the tribes Nkonde, Wanda, and Mambwe, with all of whom the company made treaties by which its authority was recognised over these districts, but it was almost inevitable that the management should slip into the easier way of letting the Arabs purchase goods at the Nyassa terminus, and convey them by their own people, often slaves, to Tanganyika, the European staff being too limited in numbers to superintend all the stations required.

The international importance of this route has been indicated by almost all the recent explorers of the central regions, Giraud, Lenz, Wissmann, having returned from the Congo Free State this way. If the block on the road between the lakes continues this will be no longer possible, and an important part of Central Africa will be practically closed to Europeans, whereas, if it were kept open, there would be little danger of obstruction on either of the great inland seas, which are more favourably situated in this respect than either railways from the East Coast or narrow rivers from the West. A glance at the map shows it to be one of the most important routes in Africa, strategically considered. The elevation above the sea level probably renders it more healthy for Europeans than Arabs, and its possession gives ready access to the centre of the Arab position on the continent.

Although the training of the natives to industrial pursuits is a slow process, yet there are tribes like the Wa-Nkonde, who in their own way are an industrious and intelligent people, numbering about 30,000. They rescued the party besieged at Karonga, and some of them might be effectively organized for the defence of the country, and well led would no doubt keep the road to Tanganyika clear.

The Angone, the Zulu race on the plateau west of Lake Nyassa, recently defeated the Bemba warriors, who co-operate with the Arabs in destroying their neighbours. There are also remnants of races, such as the Bisas, who have found a place of refuge on the islands of Lake Bangweolo, who would probably be of use in any serious attempt to restore order in the country.

The company has paid all its expenses, but has been almost deprived of dividends by the fact that the Portuguese have for several years demanded higher duties than they were entitled to charge according to their own tariff. When these present difficulties are overcome the company ought to be placed on a more extended basis. This would, no doubt, be agreeable to the Portuguese in respect of yielding larger transit duties. It would also enable the company to be of still greater use in respect of the important objects to be accomplished in Africa.

APPENDIX TO MR. STEVENSON'S PAPER.

CORRESPONDENCE PUBLISHED BY PERMISSION OF H.M.
SECRETARY OF STATE FOR FOREIGN AFFAIRS.

*To the RIGHT HONOURABLE THE MARQUIS OF SALISBURY, K.G., H.M.
Secretary of State for Foreign Affairs.*

MY LORD MARQUIS,—While the subject of the continuance of the Mozambique tariff is before your Lordship, I beg to submit some circumstances which preceded the formation of the African Lakes Company, which may indicate that the Company is entitled to special consideration by the Portuguese Government.

Soon after the missions were established on Lake Nyassa, it appeared that a concession of the exclusive right of navigating by steam the rivers Zambezi and Shiré had been offered to one Zagury, a Portuguese subject settled in Liverpool, provided that within three years he had fulfilled the conditions of navigation required, the concession being for a term of thirty years.

As one of the conditions was that the steamer should ascend the Shiré into Lake Nyassa, which was impossible on account of the cataracts, nothing could come of this. But in October, 1876, the Cortes appointed a commission* to inquire into the position of the colony. They seem to

* Appointed by the King, the Report approved by the Cortes.

have derived a good deal of information from some papers on the subject I had been led to circulate during 1876.

When the report of the Committee came before the Cortes, Viscount Duprat, their Consul-General in London, applied for six copies of these papers to be forwarded to Lisbon for the use of his Government. Some time afterwards he sent me a translation of a document indicating the general lines of the proposed tariff. Subsequently I received from Lisbon the text of the tariff with two passages marked, of which translations were attached as in the margin.

Translations sent: "Art. 70. The transit of merchandise from places outside the province, and destined, by land or water carriage, for foreign places adjoining Portuguese territory on the north and south, and also for countries situated beyond the confluence of the rivers Shiré and Zambezi, is permitted through the Custom Houses mentioned in Article 11, on payment of a sole duty amounting to 3 % *ad valorem*.

"Art. 84. The taxes of 3 and 1 % *ad valorem*, which have been collected in the Custom Houses of Mozambique for public works are extinct, the administration being expressly prohibited from reviving these taxes, or fixing any other new ones on imports or exports."

The communications during the previous years had been so bad (at one time as much as eight months having passed without hearing from Nyassa) that there was serious thought of withdrawing the mission, but there was now what appeared to be an invitation on the part of the Portuguese that the friends of the mission should undertake the traffic under the following circumstances:—

First. That the Portuguese Government were perfectly aware of the views they entertained; secondly, that the confluence of the Zambezi and Shiré was fixed as a limit beyond which they would not be interfered with; thirdly, that the last clause of Article 84 amounted to an honourable understanding that no unfavourable changes would be made.

The Company was accordingly formed, and a steamer was sent out in the following year. During the last ten years the Company has been gradually developed, and notwithstanding the very great difficulties which surround the commencement of such an enterprise, would have moderately remunerated its shareholders, had not the Portuguese set aside the transit duty.

Recently the increasing requirements of the district have necessitated the sending out of larger steamers.

I trust your Lordship's representations will prove to the Portuguese Government that the practical confiscation of these steamers, and the destroying of the position of the Company, is a course that cannot be honourably or justifiably pursued.

I have the honour to be, &c., &c.,

(Signed) JAS. STEVENSON,

Chairman of the African Lakes Company.

LARGS, March 30th, 1888.

I beg to enclose a copy of the pamphlets* referred to, and also of the papers sent me by Consul-General Duprat.

* Of which an extract is given at p. 80.

Paper sent me by CONSUL-GENERAL DUPRAT.

PORTUGAL'S AFRICAN COLONIES.

"The Government, after duly considering the recent development that has taken place in Africa, and with a view of enabling our Colonies to accompany the onward movement in the march of progress, and occupy the prominent place that of right belongs to them, has established a new tariff of customs at Mozambique, the result of which will, of course, be to attract commerce to that province, and open all ports to national as well as foreign trade. The decree also permits commerce to be carried on along the coast under a foreign flag.

"The new tariff of customs duties for the province of Mozambique is as follows :—

IMPORT DUTIES.

	Reis.
Butter, European or Indian, per kil.....	80
Gunpowder	100
Guns, gun barrels, and revolvers	500
Hoes	60
Liquors, distilled, per litre	90
Liquors, fermented	20
Metals, unwrought or wrought, 6 per cent <i>ad valorem</i> , excepting iron.	
Molasses, per litre.....	90
Oil, olive	20
Pistols, each	500
Ships (new or seaworthy), to be registered as Portuguese vessels, 5 per cent <i>ad valorem</i> .	
Vessels (condemned as unseaworthy) to be sold, 4 per cent <i>ad valorem</i> .	
Sugar, per kil.	30
Tea, per kil.	60
Tobacco, unmanufactured	200
Tobacco (manufactured), cigars	600
Tobacco, other lots	400
Wine, in barrels or bottles, per litre	40
Woollens, cotton, raw white, including handkerchiefs, per kil.....	90
Woollens, cotton, stamped, dyed	60
Woollens, open or transparent, such as lace, silk, &c., 10 per cent <i>ad valorem</i> .	
All other goods not enumerated, duty free.	

EXPORT DUTIES.

Cowrie shells	4 per cent. <i>ad valorem</i> .
Gums.....	2 ditto
Indiarubber	4 ditto
Ivory	6 ditto
Orchilla weed	1 ditto
Seeds of all kinds	1 ditto
Skins and hides	2 ditto
Wax	4 ditto

All other articles not enumerated, duty free.

"This decree was favourably received by all the Portuguese press, and is generally considered as an essential basis for the future development of the province of Mozambique.

"Article 70 of the new Mozambique customs tariff.—The transit through the Custom Houses, mentioned in Article 11, of merchandise coming from places outside the province, and destined, either by land or water, for foreign countries bordering on the north and south of Portuguese territories, is permitted, and also merchandise for places situated beyond the point of confluence of the Shiré and Zambezi, on payment of a sole duty of 3 per cent *ad valorem*."

LARGS, *April 5th*, 1888.

MY LORD MARQUIS,—In describing the circumstances under which the African Lakes Company was established, I omitted to call your Lordship's attention to the arrangements that were made subsequent to the issue of the Portuguese copy of the new Mozambique tariff. In this document certain Custom Houses, which with the coast between them are opened to foreign flags, are detailed, viz., Cabo Delgado, Mozambique, Angoche, Quillimane, Sofala, Imhambane, and Lourenco Marques. But as none of the Custom Houses were convenient for the transit trade to Lake Nyassa, it was arranged by Her Majesty's Government with that of Portugal, that an additional Custom House should be established at the confluence of the Zambezi and the Shiré. During the last ten years the Company has always used the British flag, as it was entitled to do, in trading to this as to the other Custom Houses.

I have the honour to remain, &c., &c.,

JAMES STEVENSON.

April 9th, 1888.

DEAR SIR,—I am directed by the Marquis of Salisbury to acknowledge the receipt of your letter, and in reply his Lordship desires me to address to you his thanks for sending him so interesting a memorandum on the subject of the African Lakes Company, and also the book on the civilisation of South-Eastern Africa.

I remain, dear sir, faithfully yours,

(Signed)

SYDNEY GREVILLE.

James Stevenson, Esq.

An exceptionally interesting contribution to the coral reefs controversy, which has lately been raging between the Duke of Argyll, Professor Huxley, the president of the Geological Society, and Dr. Guppy, from the pen of Captain Wharton, hydrographer to the navy, appears in *Nature*. Captain Wharton offers evidence from the China Sea which supports the opinion that Darwin was wrong in assuming that subsidence plays a principal part in the production of barrier reefs and atolls, and at the same time modifies one part of the opposing explanation offered by Mr. Murray. The most curious part of Captain Wharton's article, however, is that bearing on the evidence which has been considered sufficient to justify a generalisation accepted as established almost beyond dispute by geological authorities. "In the Pacific," observes Captain Wharton, "the vast majority of islands have been merely sketched, without a single sounding having been taken, either inside or outside lagoons. I append a few statistics relating to the larger coral groups to show our position in this respect, merely remarking that the waters of the Fiji and the Society Islands are the only ones which can be said to be in any sense surveyed:—

	No. of Islands.	No. Surveyed.
Paumotu Islands.....	74	1 partially.
Ellice Islands	10	None.
Gilbert Islands	16	None.
Marshall Islands.....	30	None.
Caroline Islands	43	3 partially.
Tonga Islands	6 groups	2 groups partially."—

Manchester Guardian.

NOTES ON THE NYASSA REGION OF EAST AFRICA.

(See Map facing page 72.)

By MR. HENRY E. O'NEILL, H.M. Consul for Portuguese East African Possessions.
Gold Medallist of the Royal Geographical Society, London, &c., &c.
Corresponding Member of the Manchester Geographical Society.

[Read to the Members in the Library, Wednesday, June 13th, 1888.]

JUST a month has passed since my return to Mozambique, after carrying out a journey to Lake Nyassa. Some of the chief incidents of that journey, such as the attack made upon us by Arabs at Karonga, have already reached you from other sources; but it may interest your readers to hear of something more than the fighting at Karonga, and to learn if, out of that mêlée, we have secured any geographical or other useful result.

A main object I had in view in undertaking that journey was to discover something of the possibilities of an extension of legitimate trade along the line of country divided by the Nyassa and Shiré waterways. I also hoped to collect fuller and more reliable evidence upon the state of the slave trade—respecting which reports of a great increase have reached England—than I could possibly do whilst stuck upon a small islet off the coast, and, as this subject is of very general interest, I may also tell you something of it.

My travelling companion was the Rev. Lawrence Scott, of Denton, Manchester, and to him, I think, we shall owe some of the best results of our journey, for he is a keen botanist, and has taken home with him a collection of from 600 to 800 species of plants. Many of these, we hope, will be altogether new, and some may be of economical value. Before this reaches home his collection will be in the hands of the experts at Kew, and we may soon expect some report upon it.

For my own part I did not like to lose the opportunity a visit to Lake Nyassa gave me of testing the longitude commonly given to it, and I provided myself before starting with two of the best chronometers I could procure for this purpose. Although all the results have not yet been worked out, I think I may say I have secured a good line of longitudes from Quillimane, up the Zambezi and Shiré rivers, and extending to the north end of Lake Nyassa. They will make one or two important corrections in positions about the Lower Zambezi, and the observations I secured on the western and southern shores of Lake Nyassa will, I think, be bound to shift the western shore of the lake from 6' to 8' to the eastward.

I am myself well satisfied that the whole lake should be transferred that distance to the eastward, for all my observations point to the excellence of the survey the late Mr. James Stewart, C.E., made of it so far as the relative positions of its leading points go. No very appreciable error exists, I believe, in his survey of the whole lake, which in great part he carefully triangulated, but the lake will have to go over our maps bodily to the eastward the distance I have named. I do not, of course, ask you to accept this change of position of a great African lake until the value of the observations I have made has been tested by experts and made public.

Stewart's error in the longitude he gave to the lake is easily and naturally accounted for. Having fixed, as he doubtless hoped correctly, the longitude of Blantyre Mission Station, he used that place as his base, deducing from the longitude he himself assigned to it the error on Greenwich mean time of the chronometer used by him on a later journey to fix the longitude of Lake Nyassa. I believe the chronometer used by him for this purpose was a good one, and its rate was certainly carefully watched. The longitudes, therefore, fixed by him on the lake are relatively good, and are only so far incorrect as the longitude of his base is incorrect. That point I have found, by lunars in 1884 and by chronometers in 1887, to be about 7' further to the east than he has placed it, and, therefore, by this same amount will all the positions fixed by him on the lake have to be shifted to the eastward.

So much for the scientific results of my late journey. A few specimens of rocks were also collected, which Professor Prestwich has kindly consented to examine; but they are far too few to enable him to say much upon the geology of the country.

I am not going to linger in these notes over any detailed description of our journey up the Zambezi and Shiré rivers, or tell of our pleasant stay at the Scotch settlements of Mandala and Blantyre, on the invigorating Shiré highlands, or of the voyage by steamer of nearly 700 miles over the clear broad sweep of the waters of Lake Nyassa. And I have promised not to delay you by any further description of our troubles at the north end of the lake, to which I see the *Manchester Guardian* has treated you very fully. I will not do more then, than, in passing, add my testimony to the truth and accuracy of those accounts, whose writers show a satisfactory breadth and comprehensiveness of view in African affairs. What I will try to do, in the space this paper allots me, is to discuss the region I have lately visited from the point of view of its commercial prospects, an aspect that will interest many of your readers, and of which I notice little has been said.

The region of the Central African Lakes is, to the general reader of African literature, a land given up to the Mohammedan slave-dealer and the Christian missionary; a happy hunting ground for the former, in the density and weakness, through want of union, in its native population, and in one sense also for the latter, in its freedom from the average European trader, with whose disregard to temperance principles, in his dealing with the blacks, the missionary is bound to clash. For let me at once make it understood, that European trade in the region of the central lakes, Nyassa and Tanganyika, has been carried on under a most exceptional and admirable rule. Being, as yet, wholly in the hands of a company, whose directors are mostly wealthy philanthropists, spirituous liquors of all kinds have been rigidly excluded from their stock-in-trade. Hence we have the very unusual spectacle of a country in which, though Europeans have settled in it, and the British trader has worked in it for over twelve years, the brandy bottle is not seen, and rum and gin are words yet unknown to the natives. Is it possible that trade can belie the experience and traditions of European commerce in primitive countries and prosper under such conditions? This is a curious question, and the answer is of vital importance to those who would in Africa develope, with due regard to the welfare of the African, and you will agree that all praise and support is due to those who are striving to solve it satisfactorily.

But, first, we must learn something of the nature and prospects of the trade, and of the possibilities of an extension of commerce in this country. Take a map of Lake Nyassa, and let us gain an idea of the native races that surround it. In every direction around the lake we find a fairly dense population. Passing up from the south, the Shiré valley, from the confluence of the Ruo river to a little distance from the outlet of the lake, is thickly peopled by the so-called Makololo, who are really the remnants of the Manganja gathered up into something like union and strength under the Makololo followers of Livingstone. One of these, Ramakukan or Kasisi, is now recognised as the paramount head of the natives peopling the Shiré valley, and his rule extends eastwards upon the Shiré highlands to the Scotch stations of Blantyre and Mandala.

Upon the south-west of the lake you will meet with a powerful section of the Angoni or Zulu tribe, with which there has been a large incorporation of the original Wa-Nyassa or lake-shore dwellers; but by a strict observance of Zulu customs, arms, and dress, they still retain, under the despotic rule of Tchikusi, most of the characteristics of the Zulu tribe.

Again, further north, and upon the high land a little distance from the lake, we find another great section of the Zulu people, the Angoni, or Mangoni as they are sometimes called, under the

great chief Mombera. A large tribe, the Atonga, formerly held this country, and still preserve their independence at several points along the lake shore, but the mass of them appear to have been "eaten up," and entering the conquering tribe have intermixed with them and adopted the habits of their conquerors. The tribe you see marked as the Atambuka, along the rich Rikuru valley, are, I learn, but a section of the Atonga, subject now to the Angoni of Mombera, and in course of being assimilated by them. Only the presence of the missionaries of the Free Church of Scotland on the western shore of the lake, and at Mombera's headquarters on the highlands, has saved the whole Atonga tribe from a similar absorption.

Northward still of this, and inhabiting the rich country that slopes up from the north-west extremity of the lake to the water-parting between Lakes Nyassa and Tanganyika, are the Wa-Nkonde and the Wam-Wamba, natives less superstitious, more industrious and peacefully inclined, than those we have just glanced at, and who possess, in the opinion of those who have lived amongst and observed them, many qualities fitting them before most East and Central African tribes for contact with the European and the reception of civilised teaching. These, with the Wa-Suku, who occupy the higher country behind them, are the inhabitants of the district marked on most maps as the Konde country—a country described in the brightest colours by Capt. Elton, and by others who, like the Rev. Alex. Bain, M.A., have had even better opportunities of observing it. It is especially rich in cattle, sheep, and goats; and I should mention here that cattle are abundant on all the highlands west of the lake peopled by the Angoni, whose habits are more pastoral than agricultural.

Rounding the northern extremity of the lake we came upon the Mangwangwara or Mavite, as they are known upon the coast, who claim also to descend from Zulu ancestry, and who certainly show in their predatory habits, and in their retention of the Zulu head-dress and arms, some former connection with that tribe. But the extent of their migrations, and the regular observance of the Zulu rule to conquer and incorporate every weaker neighbour, has so destroyed their individuality as a tribe, and led to so great an infusion of other dialects into their tongue, that they are now but a huge mixture, resembling the Zulu, pure only in their love of war and in passive submission to the despotism of their chief. Their warlike habits are a curse to the country between north-east Nyassa and the coast. So near to the sea did they approach in 1882 that they overran the Universities mission station of Masasi, and on another occasion swept the country bare to the seashore fronting the Portuguese settlement of Ibo. The next year an army of them fought their way up the Lujenda valley, and were only stopped in their

southward course by the sharp resistance of the natives on the northern slopes of Zomba. But, though given to devastating adjoining countries, they are amongst themselves united and strong, and furnish a great population for the highlands north-east of Nyassa.

We have now nearly passed round the whole lake. Upon the south-east shores to which we have just come, you will find no great paramount chief or one tribe strong in numbers. This is due to the Arabs who prevail here, and whose policy it is to break up and weaken, rather than to unite and strengthen, and who hold minor Wa Nyassa and Ajawa chiefs, such as Makanjila, Mponda, and Mataka, better in hand by so doing. Naturally Arab influence in this district is strong, for it is the terminal point, on Lake Nyassa, of the celebrated Lujenda valley slave route to the Zanzibar ports of Kilwa and Lindi. The slaves are, however, now obtained from far west of the Nyassa, and the country on its south-east shore is fairly well peopled with small communities, subject to a number of petty chiefs, besides the three I have named.

In the midst of the hills and plateaux that support the somewhat heterogeneous mass of tribes and peoples I have enumerated, Lake Nyassa lies embosomed, giving ready access to them all by the easy secure navigation of its deep, shoalless waters. If you ask me for an estimate of the numbers with which this noble waterway places you within such easy touch, I can only reply by a guess; but I shall not, I think, be far wrong if I say that—drawn a line parallel to the lake shore and at every point 50 miles distant from it—the numbers peopling that surrounding belt will exceed one million.

Now, knowing something of the people, their numbers, and the means of communication with them, we are in a better position to discuss the question I assume you, or some manufacturing magnate, to have asked me, "What are the prospects of an extension of commerce in that country? Is there a demand for goods of British manufacture?" I reply, unhesitatingly, "Yes, but hopes must not be indulged in of a large immediate demand, or for a demand, at the present, for any goods but those of the simplest character."

So diverse and contradictory are the opinions expressed by African travellers and others, to whom home merchants generally turn for knowledge and advice on this question of African markets for home manufactures, that I can well understand the perplexity and hesitation and fear that exists regarding them. That a demand, and that an imperfectly satisfied one, exists in the country of which we are speaking, I can convince you, I think, without difficulty.

A few weeks before I reached Bandawe, the headquarters of the Free Church Mission on the lake shore, a great meeting

had been held by Mombera and his councillors, or "Indunas," to which Dr. Laws had been invited. One of the objects of this meeting was to press the whole Missions to come up and dwell with them on the highlands. "You live with the Atonga, and they, our enemies and slaves, are clothed and are getting rich," said the chief. "The calico you have brought and distributed in their country would cover a road from that to this (a distance of about 40 miles). Come up, all of you, and live with us, and let us buy your calicoes and cloths and blankets." "Impossible," was the reply. "We must have a station on the lake shore, where our steamers can call." "We will make a road for you," was the chief's reply, "and keep it open with our spears." And their disappointment was great when they found that Dr. Laws was unable to accept that generous offer. But does not this look like an ill-satisfied demand in that direction?

Again, when speaking with Archdeacon Maples, of the Universities Mission, on the east side of the lake, he told me of the efforts they had made to induce Sonjela, one of the two great Mangwangwara chiefs, to permit some of their number to reside with or near him. So far, however, they had been rebuffed, and with this reply: "Bring calico; we do not understand your tracts or your preaching, but bring calico, so that we may buy and clothe ourselves, then you may come." One could not help feeling that a concession to trade might have been helpful to the cause the mission had at heart, but the Universities men could not see their way to this, and had, for a time at least, to retire discomfited. But was not this another instance a proof of what I am telling you?

I will give you one more example of this demand. The Wam-Wamba, notwithstanding their superior qualities, are, from want of contact with Arabs and Europeans, perhaps the most absolute go-nakeds on the shores of the lake. When Capt. Elton and Dr. Laws first visited their country in 1877, and when we saw them ten years after, in 1887, a cutting from a banana leaf formed the most complete dress of a man, and a strip of fibre cloth some two inches wide the holiday garb of a woman. A party of us dwelt perforce in this country for six weeks last year, and being ourselves clothed and having with us a number of native servants, generally speaking also well covered, the passion for dress grew so fast with our hosts that before we left white calico had long ceased to satisfy them, and a fowl could only be bought for a strip of coloured cloth, or a yard of "Turkey red."

You will now no longer doubt that the demand exists, and it is, I say, a growing one, as regards in the quality as well as in the quantity of the goods asked for. If you want proof again of this, visit any mission or trading station in East Africa, and

you will see that the natives in its vicinity are far better clothed than those more remote from it. Nothing is more infectious or spreads more rapidly amongst the natives than the passion for dress—provided, of course, there is security for life, and there are given opportunities for gratifying it.

The next question you will naturally ask me, and upon my reply to it I am fully aware the degree of confidence with which I shall inspire you in the future prospects of this country will greatly depend, is: "What has the country to give in exchange for our manufactures? What are the present exports, and what the products that might be exported thence?"

First, then, and leading the list in importance, is ivory. To this most valuable of all exports—putting aside for the present any possible supply of minerals—trade must chiefly look for an immediate return on its capital. Perhaps there are no better elephant hunting fields in Central Africa than the great marshes of the Shiré river and on the western shore of Lake Nyassa. I have been astonished to find how little they are known by hunters who are satisfied to plod year after year with the slow and heavy bullock wagons (Selous gives us a dreadful instance of 28 miles got over in one by sheer hard dragging through sand and swamp in 40 days) through the Matabele and other countries south of the Zambezi, hunting fields that are venerable to the English sportsman, whose aim is large game. I do not mean to say, however, that the supply of ivory which we may look for from the Nyassa is wholly dependent upon that furnished by these fields. What I desire to point out is that the present supply may, and should be, largely increased, to the benefit of trade, the country, and the people generally. The Arab slave dealer is the chief collector of ivory in this country, with the tusks of which he loads his slaves, obtaining thereby cheap and profitable carriage to the coast. The British trader upon the Nyassa obtains but a fraction of the whole amount collected—just so much as the Arab chuses to part with to enable himself to renew his supply of barter-goods and to resume his collection in the interior. Whilst the operations of the British trader on the Nyassa are confined to his station on the shores of the lake, he plays the dignified *role* of a storekeeper to Arab traders, where they may renew their store and be relieved of a journey to the coast.

It should not be difficult to alter this. The collection must be undertaken and carried out by English agents, who should travel with large caravans in the interior districts west of the Nyassa, and get from the native chief, at first hand, the ivory he now waits for in his store on the shore of the lake. Much has been said of the check given to the slave trade by the taking up of the ivory, on the Nyassa, from the hands of the

Arab collector, thus obviating the necessity for slave carriage to the coast. But I am now convinced that a very slight blow is struck by this means at the slave trade. Little good will really be effected until the collection in the interior is also carried out by Englishmen, and the Arab trader is undersold, and thus peacefully ousted from the collecting field. The British trader has every advantage on his side. Water carriage should place his goods upon the Nyassa cheaper than they can be carried there overland by the Arabs, who have also to contend with the high percentage exacted from them for advances by the Indian trader of Zanzibar or Mozambique.

I can conceive few things pleasanter for a young and healthy Englishman, prepared, of course, to live in tent and on the simplest fare, than a journey of six months or a year in charge of such a caravan, travelling slowly through new country. And what delightful prospects it opens up for a young naturalist to accompany a caravan like this, where more time would be given him to accomplish good, thorough work, than he can hope to get in the usual style of African travel, almost always, more or less, a push. Some of our best African travellers—Schweinfurth, for example—have only succeeded in giving their thorough descriptions of country, and bringing home good natural history collections, by attaching themselves, for months and years, to Arab slave caravans, and utilising the leisure their slow locomotion and long delays afforded. How much better this would be done if the caravan were headed by your own countrymen!

But to return to our subject. Next in importance to ivory must be placed indiarubber, in which the country west of Nyassa, stretching towards Lake Bangweolo, is undeniably rich; but comparatively little is collected, as the natives know little of the value of the plant, and have never been taught to collect it. Its export might be indefinitely increased, I believe, by the same means I would like to see adopted for the extension of the ivory trade.

There are many other products indigenous to the country, but few of those known are able to bear the present cost of carriage to their markets. I doubt not that, when the country comes to be better traversed and scientifically examined, the number of more valuable products will be increased. How completely they may remain hidden until some chance brings them to light, I can instance by the case of *Strophanthus Kombe*, of which some specimens were sent by me to the Foreign Office in 1881, and thence to Kew. That variety turned out to have been previously analysed by Professor Fraser, of Edinburgh; but a demand for it, as a drug for heart disease, shortly after sprang up, and its existence in this country having been thus proved, I was able to start its collection in

the Shiré and Nyassa districts and in the Gaza country. The first consignments home proved to be so valuable to the collectors that soon a rush was made to collect it, and the natives were quickly taught to bring down the pods in large loads. In the same manner we may hope other valuable products will come to light, and more profitable exports found than the oil seeds which now form the staple articles of production on the coast and Lower Zambezi and Shiré rivers.

We must remember how slow and gradual has been the development of trade on the African coasts. When the British Indian traders, to whom, a little more than a century ago, the Portuguese Viceroy of India granted a monopoly of the trade of East Africa, arrived on the coast, trade was precisely in the condition we find it now in the interior. The native knew nothing of the collection of valuable products—knew not, indeed, of their existence until shown. Now, on the coast, and for 100 and 200 miles inland, they have learnt the demands of trade, and a regular collection is made by them of rubber, calumba, orchilla, and copal.

So far we have only spoken of the export of produce indigenous to this country. When Europeans, however, begin to settle in it—and in a small way this settlement has already begun—fresh sources of wealth are opened up, and other products, for which the climate and soil are found favourable, are cultivated, and their export forms a valuable adjunct to that of the natural products of the country. Coffee and sugar have already been raised with success, and wheat, tea, and chinchona are all undergoing trial. The coffee and sugar consumed at the mission stations is mostly home or Nyassa grown, and very good in flavour and strength I have found them. A later experiment is the introduction of Angora goats for the production of mohair.

We are now led to the next inquiry you will naturally make, and which is indeed inseparable from a consideration of the future prospects of the country, "How far are these districts suited for colonisation by men of our race? Do they contain, not mere isolated points, but large tracts where health may be preserved and outdoor work performed by Englishmen?" The experience of those who have lived in the country for years gives to this question a very favourable and encouraging reply. Given an altitude of from 3,000ft. to 5,000ft. above sea level, and you have in this country, which is sufficiently near to the coast to get the benefit of the monsoon winds and whose rainfall is not excessive, a climate in which a sound European constitution may retain all its vigour and power of work. I am not speaking at hazard on this point. Scotch and English men and women have now lived for years in perfect health on the high lands around Nyassa, east and west, north and south, for at all these points we have mission and trading stations. On the lake shore,

and on islands on the lake itself, they have also dwelt, but the heat of the lower altitude—1,600ft. only above sea level—makes the summer weather a little trying. Consul Hawes writes from the Consulate on the southern slope of Zomba, about 3,500ft. up, “The climate of Zomba is frigid in the winter months, and fires and blankets are very pleasant.” A huge wood fire crackling brightly in an immense fireplace was, I remember well, a most enjoyable reminder of home when I visited Blantyre in the winter months—June and July—of 1884.

It is almost impossible to speak to-day of any part of South Africa without reference to the possibility of its containing mineral wealth, so plentiful and widespread have been the “finds” of precious metal south of the Zambezi. No systematic search has yet been made in the Nyassa region, but I may say that gold has been found in some river beds on the western highlands. Whether this will prove to be in payable quantities I cannot pretend to say. It was first seen by Mr. Herbert Rhodes, a companion of Capt. Elton’s, on his last disastrous journey, and I hear it has been again met with by a member of the Free Church Mission of Scotland. To the north-east of the Portuguese settlement of Tete, on the Zambezi, gold has been collected for many years, and the range washed by those gold-bearing streams is of similar formation, and is, in fact, the same range as that which stretches to the northward, west of the Nyassa, on which gold has also been seen.

I think I have now put before you all that is known of the capabilities of the Nyassa region. Perhaps you will say that the majority of them are common to many mountainous districts of East and Central Africa. Granted, but I reply there is one great natural gift it possesses which is not—which is special, indeed, to the country under our notice. The healthy uplands surrounding the Nyassa are divided by the only navigable waterway to the coast in East Africa, and this alone naturally marks it out as one of the first districts of East Central Africa for European occupation. You have nothing like it in Bechuanaland, which we are gradually colonising, in spite of its many unattractive features, through the sheer momentum of the English advance from the South. No vestige of a navigable stream cuts our new acquisition in Masai-land, where, moreover, traders have literally to fight their way into immense armed caravans through a powerful and hostile people (see Thomson’s “Through the Masai Country”). To be able to step into a river steamer at a seaport—as may be done now at the mouth of the Zambezi at Inhamissengo or Conceiças—and be carried up in five or six days to the fort of the Shiré highlands, within a day’s walk of our first settlements, is an immense step already gained. Without any wish to disparage the prospects of the other

countries I have named, it cannot fail to strike you that British Bechuanaland, or the "Slopes of Kilima-njaro," of which we have heard so much, are not to be approached with any such ease.

I am very desirous to avoid anything like a one-sided advocacy of this country, though I believe it to be superior in its capabilities to the latest outlying fields of British advance in Africa. But it is surely a right we owe to the public to place it in possession of the means to judge every country upon its own merits. That I may be held free from any charge of special pleading, I will now place before you "the reverse of the medal," and tell you fairly the great disadvantage under which this country labours, and the chief obstacle to its development by British hands.

It is to be reached by a navigable waterway from the coast—that I have told you is one of its chief advantages. The outlet of that waterway is in the hands of a foreign power—that I must now tell you is its great and chief disadvantage. You know, however, it is one that the history of South Africa has made familiar to us. The Transvaal and Orange Free States have both been locked up in the interior, by the interposition between them and the sea, of foreign colonies, who have held their only outlets for trade with the civilised world. For years they paid heavily for that misfortune. Then consumers have contributed towards the revenues of the maritime states, by the retention, on the part of the latter, of the full amount of customs dues levied on goods passing into the Inland States. The injustice of an exaction of this nature is now everywhere acknowledged, and in South Africa; Portugal, and the British Colonies of Natal and the Cape, refund, either by a very low transit duty or by a rebate to the inland states, all but a small contribution towards the cost of collection.

Is it hopeless to expect that Portugal will be equally just and generous to the interior foreign settlements upon the Nyassa? She has already acknowledged the justice of the request, in the concession for seven years—from 1877 to 1884—of a low transit duty of 3% on all goods passing the confluence of the Shiré and Zambezi for Nyassa. That liberal and just enactment was revoked in 1884, shortly after the so-called "Congo Treaty" (in which Portugal also consented to draw the boundary line, towards Nyassa, of her East African possessions at the Ruvo river) and was thrown out of the British Parliament. If this concession be regained and assured to us for a certain period of years, then the fact that the outlet of their waterways to the coast is in foreign hands becomes a matter of but slight importance to settlers on the Nyassa. But trade and capital will not venture where there is fiscal uncertainty and the British settler naturally

objects to being taxed, even indirectly, for the benefit of foreign pockets.

I wish I had time to tell you something of the slave trade in this portion of the East African coast, for the extinction of which a strong English settlement on the Nyassa would do very much. But I should far overstep the limits of a paper in your Journal, and perhaps also intrude matter foreign to a geographical society's magazine, if I were to dwell upon it. I will only tell you that evidence comes to us from all sides—from the interior, from the coast, and from Madagascar—to show that it has largely increased of late. No one who has had any opportunity of watching events in East Africa during the past three and four years will hesitate to connect this with the rising Arab ascendancy in the interior, and the terrible destruction that has been wrought in the countries of the Congo Free State and with the great slave raids made west of the Nyassa, chiefly amongst the Babisa, by Arabs who have established themselves in force in the Senga country. From the Albert Nyanza to Lake Bangweolo there arises the same loud and bitter cry, due, I unhesitatingly assert, to the progress westward of the destructive wave of Arab advance that has been impelled from the east coast. I frankly confess that it does me great good to hear that they have it not all their own way, and that, though very seldom, there are times when the oppressed are able to give them a check. Let me quote a few words from a letter of Dr. Laws, which I received a short time since. The Arabs had leagued themselves with the Awemba, and, proceeding on their usual plan of exciting tribal feuds, had made extensive raids on the Babisa, a large tribe east of Lake Bangweolo. The latter sought the aid of the Angoni, which was granted, and Dr. Laws thus describes the return attack:—

“The Angoni army was strengthened by the Bacenga and Babisa, many of whom were armed with guns. On reaching the chief stockade of the Awemba, and also a less important one, these latter shot down those guarding the entrances, and then the Angoni carried them by storm, gaining a complete victory. The Awemba chief was killed as he was being carried away in a machila. All were put to the sword. The Angoni wished to spare the women and children, but revenge for past wrongs would not allow the Babisa to hear of this, and so there must have been, I fear, dreadful slaughter. From captives the Angoni learned that a compact existed between the Arabs and the Awemba, whereby the latter were to proceed south along the Loangwa valley, whilst the Arabs were to execute a corresponding movement along the lake shore, taking possession of the same.” Does not this tale give a frightful proof of the passions roused and blood shed through the intrigues of Arab slave dealers in quest of their prey?

I am sometimes told that the British public now-a-days has ceased to interest itself in the African slave trade. Those who think this, look, I believe, not far below the surface of things. A subject that has moved the heart of England, at different but recent epochs, as deeply as that of the African slave trade, and that has stirred the mass of the people to such sacrifices as have been cheerfully made in the cause of its suppression, and has even stamped itself upon the policy of the country, does not lightly pass from the mind of a nation, though it may disappear for a time from the public press and the "topics of the day." It is latent, and lies not far below the surface, and bursts forth at times with unexpected and surprising force, as was shown by the outburst of feeling a few years back at the "slave trade circulars," documents apparently innocent enough, but which violated the attitude an English public considered a British man-of-war should take, when slaves bearing marks of ill-treatment sought refuge upon her, and, consequently, evoked an expression of feeling, strong enough to rend one to pieces, and make a satisfactory change in the other.

Were other subjects wanting, the slave trade alone would be enough to excite deep interest in Ceneral Africa. But a host of others have arisen, political, commercial, religious, and scientific, sufficient to spread over the civilised world the interest that was formerly felt by anti-slavery communities and philanthropic and geographical circles. In the new age that Africa has entered upon there is abundant room for all interests. And, in watching the working out of the new and powerful forces that are bearing down upon her from all sides, and in the conflict or amalgamation of these with the native races that now people the continent, there is an ample field for observation and study.

The great unoccupied continent of the world—or shall we say occupied only by races too feeble for recognition—has become a favourite field of European diplomacy, and foreign statesmen, dreading the illimitable expansion of what may be called the Anglo-Saxon period of the world's colonial history, are making feverish haste to seize upon the last portionable spaces of the globe to provide against the time when colonial enterprise in their countries shall be strong enough to call for independent and national fields for development. Every year shows some new appropriation—some fresh partition of the few portions of Africa on which Europe has not yet laid its grasp, and which are peopled only by Africans, whose voices are not heard in the "scramble." Had it not been for the neutralisation of the great heart of the continent by the construction, on the most broad and liberal economical principles of the Congo Free State, we should find that "scramble," which now shows some sign of abatement, continuing in the interior, and European

rivalries and intrigues would have been carried out into regions where representatives of every civilised power now work hand-in-hand for the country's good.

That great scheme which Stanley's genius evolved, and the philanthropy and wealth of the King of Belgium, aided by the power of Bismarck, brought into recognised being, was surely the happiest that could have been conceived for the real welfare of the native races of Central Africa. Hard knocks it has received in plenty in its infancy, and even encroachments from powerful neighbours; but in spite of all the greater part of the immense area of the African continent included within the basin of the Congo, it remains a "Free State," recognised by the majority of the civilised powers. In it the commerce of every nation has the freest play, undisturbed by any possibilities of protective tariffs, and free from all but the lightest fiscal burdens.

Shall we be able to say so much ten years hence of German East Africa—of the agglomeration of French colonies we see forming in the North-west—of Italian commercial policy, if she gains an over-ruling influence in Abyssinia—of the policy of the immense colony which Portugal is ambitious to form by the junction along the Zambezi basin of "Portuguese Africa, East and West"—or of that of Spain, if political events aid her in her desire for the acquisition of Morocco? Nay, let us look nearer home and ask—does the present policy of our own South African colonies give any promise of it in the confederation of South African States, which we hope to bring into being? Does not that policy threaten to be "union against the outside world," even if we are promised unrestricted trade between the States themselves? The resolutions passed at the late conference of delegates of South African colonies and states give their own unsatisfactory reply.

These speculations have led me apparently wide of my subject, but you will see that in truth it is not so. The future of no portion of the African continent can be correctly foreseen or discussed without a knowledge of the many forces at work in shaping the destiny of the whole.

NOTE ON THE PAPER.—In the paper on "The Nyassa Region of East Africa," read before the members of the Manchester Geographical Society last night, Mr. H. E. O'Neill showed effectively that the Zambezi question is well worth the interest which it has excited. Geographers, at least, will admit that there is no African explorer who can speak with greater authority on the region in question than the British Consul for the Portuguese East African possessions. It has often been urged by travellers of all nationalities that civilisation and trade must go hand-in-hand in Africa, and, as Mr. O'Neill makes clear, the truth of this proposition has been demonstrated in a quite remarkable manner on the Nyassa. For while the traders have evidenced their sense of duty to the natives and wise thought for the future by excluding from their list of imported commodities all spirituous liquors, the natives for their part have declared in the plainest terms that the exchange of local productions for Lancashire goods must be the basis of their intercourse with the white man. For such trade the Nyassa tribes are eager, and with very little encouragement

they are not only willing but able to defend it. Now it is perfectly clear that if trade is to be established there must be an adequate demand for imports and an equivalent supply of exports; and Mr. O'Neill hits the nail on the head when he says that explorers, anxious to awaken practical interest in Africa amongst English merchants, too often neglect to furnish sufficiently precise details on these points. In the Nyassa region not only are the chiefs eager to buy, but there is an abundant population; and north and west of the Nyassa, as well as south of the Zambezi, in Matabeleland, there are what may be spoken of as still untapped supplies of ivory and rubber. The extremely interesting discovery of the *Strophanthus*, a plant which has already assumed an important place in therapeutics, is only one example of the many miscellaneous products which await utilisation. The statement that there are indications of gold, not merely at Tete, on the southern bank of the Zambezi, but through the mountainous regions north of that river, will surprise no student of African geology. Then what is true more or less of the whole elevated interior of Africa is true of the Nyassa highlands—the country is fit for European colonisation. Coffee and sugar have already been successfully cultivated; wheat, tea, and cinchona are likely to prove equally successful; and certainly there seems no reason why the Angora goat should not thrive there. The solution of the great problem of trade with Central Africa—competition with the Arab, who, after employing the natives as beasts of burden, is able to sell them as slaves—Mr. O'Neill finds in water carriage. By the free navigation of the Zambezi and its tributaries, affording direct access either to the Great Lakes or to their vicinity, the European trader may be enabled to undersell the Arab and at the same time promote the cause of humanity. Mr. O'Neill's suggestion of European caravans as a means of reaching regions not directly accessible by water is the more worth attention as the plan has been to some extent adopted in the Egyptian Soudan. One difficulty remains—the claims of Portugal to the control of the Zambesi traffic. But the principle that a coast power cannot erect barriers at the mouth of a river affording access to countries beyond her sway is recognised on all the great rivers of the world; and Portugal herself admitted it with regard to the Congo at the Berlin Conference. Her claims in the present case have no justification either in international law or expediency, and from the point of view of the true interests of her own possessions they are suicidal.—*Manchester Guardian*, June 14, 1888.

An Insect Fight.—An observation quoted by Professor Morse in his address before the American Association last night is so exactly confirmed by a recent observation of my own, that it seems worth while to put it on record. While sitting in a hammock slung between two large maple-trees on the lawn, I heard a loud buzzing and fall of something behind me, and, looking around, I saw on the grass a locust (cicada) in the grasp of a large insect, evidently of the wasp family, but which I am not sufficiently well posted in entomology to name. It had brown wings, and large abdomen coloured black or dark brown with white spots. The whole length of the insect was about thirty-five or forty millimetres. When first seen, the struggling locust was on its back; the wasp extended above it head to head, and industriously plying its sting between the abdominal wings of the locust. The locust quickly became quiet, and then the wasp, maintaining its former position, which it did not at any time abandon, grasped the head of the locust by the middle pair of legs, and, using the other four legs for locomotion, started to drag it through the short grass toward one of the trees. There was no hesitation or uncertainty, but the wasp started at once in a straight line for the foot of the tree. On reaching the tree, the wasp began without pause to carry its burden up the trunk, using its four legs for walking, as before, and assisting itself to sustain the weight of the locust by putting its wings in operation. In this way, with a few brief pauses as if to rest and get better hold, in one of which it hung for a moment apparently by one leg, the locust was carried up among the branches of the maple, some twenty feet or so, where it became difficult for me to follow its motions. After reaching such a height, the wasp flew off in a straight line through the branches, and went out of sight. I think it carried the locust with it, but the height was so great that I could not be positive. At any rate, the locust did not fall to the ground, although, as the wasp's flight started from a crotch in a limb, it is possible that the locust was left in the crotch. The whole incident showed a perfect understanding, on the part of the wasp, of what he proposed to do, and the carrying out of a preconceived plan of procedure without any stopping to think what he would do next. The only pauses were in going up the trunk of the tree.—C. G. Rockwood, Jun., New York, August 11, 1887.—*Science*.

PROCEEDINGS OF THE SOCIETY

FROM JANUARY 1ST TO JUNE 30TH, 1888.

FIFTY-SEVENTH MEETING

Of the Society, held at the Memorial Hall, Wednesday, January 11th, 1888, at eight o'clock p.m., Chevalier R. FROELICH, Vice-Consul for Italy (one of the members of the Council of the Society), in the chair.

MR. ROBERT CAPPER, F.R.G.S., of Swansea, addressed the meeting on "Western Equatorial Africa." He traced the progress of discovery and commerce in that vast region. He said that the explorers, writers, and cartographers, to whose work-reference might be made upon African subjects, now numbered 3,300. He had himself travelled on the Niger and the Congo, and had spent some seven years in Africa, so that he was able to speak from personal knowledge. The country was endowed with the greatest resources, and only required the industry of man to develop them. Until recently the land had been almost impenetrable. Not one person in a million could realise the difficulty of travelling in the interior. The explorer required the endurance of a stoic, the meekness of a saint, and the constitution of a camel. Mr. Stanley was endowed with all these qualities, and courage in addition. The rumours now current respecting the fate of his expedition were not without precedent in the history of African travel. The rapid transit of ill news was proverbial. In Africa it would sometimes spread at the rate of fifty miles an hour. This was accomplished by means of the village drum, whose messages might be heard afar off, and repeated by another instrument. The climate of the central portions of the continent, lying within the eighth parallel on either side of the equator, he had found salubrious, and favourably comparable with that of India, China, or America. The most unsanitary district he had found was preferable to Panama as a residence for Europeans. He then touched upon the commercial history of the country. The sixteenth century had been the period of African companies chartered with exclusive privileges. But, in the absence of competition, there had been a want of enterprise, and, possibly owing to their share in the slave trade, few of the companies had prospered. In 1795 Mungo Park embarked upon his famous expedition up the Niger. This river and the Congo, which were then believed to be parts of the same water system, were pointed to by the finger of nature as the natural gates of Africa. The river Niger was largely worked by the Royal Niger Company, which was not a monopoly, which was English in its principles, and which sought to put down slavery. At one time there was an annual exportation of 100,000 slaves from the Congo. This had, of course, been changed. In January, 1875, the King of the Belgians came forward in the matter of the Congo, and nine months afterwards a conference was called, from which the International Association sprang. It was said that £400,000 had been spent in opening up this river. Means of communication were now the desideratum. They sometimes forgot that their own country was interlaced by canals. There were in England 4,000 miles of canals, and 400 miles of canal tunnelling, and canals were found to be a cheap and ready means of transport. Waterways and railways might connect the coast with the great lakes of the interior, and thus open out the continent. The route for a railway across the Sahara was indicated by the white line of skeletons which marked the route of the caravans. A slave caravan laden with two months'

provisions could not proceed at a greater rate than five miles per day. A railroad might be constructed at the rate of a mile a day. In two years a line pushed from the north would reach the centre of African commerce, and place the chief market of the continent within ten days of London. An iron track running north and south over the whole length of Africa would only be equal in length to one-third of the total mileage of the English railways, and it would only cost £2,000,000, or one-hundredth of the sum invested in the British lines.

The address was illustrated with lantern slides, maps, and views.

Questions were asked by several ladies and gentlemen present, to which Mr. Capper replied.

Councillor B. T. LEECH proposed, and Mr. T. GREGORY seconded, the following resolution: "That this meeting of the Manchester Geographical Society tenders its hearty thanks to Mr. Capper for his most instructive and interesting address." The motion was carried and responded to, and a vote of thanks to the Chairman closed the meeting.

FIFTY-EIGHTH MEETING

Of the Society, held at the Peel Park Museum and Library, Saturday, January 21st, 1888, at three o'clock p.m.

The Society had been invited to Peel Park by the Parks and Libraries Committee of the Salford Corporation, and was received by the Chairman, Alderman Bowes, and by other members of the Committee, and by Major Plant, F.G.S., the Curator.

The members assembled in the picture galleries, and after examining the pictures, the collection of birds, reptiles, shells, a large ethnographical collection, and other interesting and valuable objects, adjourned to the Library, where a meeting was held, presided over by Alderman BOWES.

Mr. Plant gave an interesting account of the early geographical books and maps found in the Library, noticing particularly:—

PEDRO APIANO'S *Cosmographia*. A Spanish work, printed at Antwerp in 1574, which is interesting from its connection with the three first English books on America.

JOHN HELVELKE'S *Selenographia*, 1647.

PETER HEYLYN'S *Cosmographia*, 1660. The map of Africa in this volume is very interesting, and the description of the "Kraken" and "Sea-Serpent" has a remarkable likeness to Milton's description in "Paradise Lost."

MIDDLETON'S and other early geographies, folios.

CHURCHILL'S Collection of Early Voyages.

OGILVY'S *Britannia, Asia*.

Vetusta Monumenta Britannica.

Monumenta Britannica Historica, with a large collection of works on antiquities and old maps and atlases.

SMYTH'S large book on the Hydrography of the Mediterranean.

Works illustrative of Japanese art, and a large number of other works.

There was also displayed some of the beautiful and rare foreign shells from the cabinet of Abraham Lincoln, recently acquired by the Museum, and a considerable collection of objects of natural history, and native art work from the Philippine Islands, by Mr. Frank S. Plant, of Negros.

The Venerable Archdeacon ANSON moved, and Mr. J. HAINSWORTH seconded, resolution—"That our best thanks be given to the Libraries Committee for their very

kind invitation, to Alderman Bowes for presiding over this very pleasant meeting and instructive inspection of some of the treasures of the Museum and Library."

The resolution having been passed, Mr. Alderman Bowes responded, and in doing so remarked that the Committee were always glad to promote scientific research in whatever direction it might tend, and the resources of the Museum and Library were at all times at the service of those whose interest led them to the need and desire to use them. One of the things, he added, of which the Committee was most proud was that they were able to do so much at comparatively little cost to the ratepayers, a sum of about £3,000 a year being enough for the support of the Peel Park Museum and Library, and for four branch establishments.

A very hearty vote of thanks to Mr. Plant for his services and kindness was also passed.

Light refreshments were then served to the members, after which there was a further examination of the beautiful exhibits made. The members, indeed, seemed very loth to leave the rich display of interesting books and articles.

FIFTY-NINTH MEETING

Of the Society, held at the Library of the Society, Wednesday, January 25th, 1888, at 7-30 p.m. Mr. T. JARRATT in the chair.

The election of the following members was announced :—

LIFE : Mr. W. J. Cunliffe, Mr. J. Wilson, Mr. J. W. Edwards.

ORDINARY : Mr. Charles Roeder, Mr. Thomas Aldred, F.C.A., Mr. Herbert Pendlebury, Mr. W. McFarlane.

ASSOCIATES : Mrs. B. T. Leech, Mrs. Willoughby, Mr. Thomas Sefton, Mr. Wm. Hughes, Mr. J. H. Granville, Mr. William Blelock, Mr. John H. Lewis, Mr. J. T. Cottrill.

CORRESPONDING : Mr. A. B. Wylde, Jeddah.

The *FOREIGN Journals* and other exchanges were examined, and their contents commented upon.

Communications from abroad, from Mr. W. Gadd and Mr. A. Anderson and others, were read.

The SECRETARY read the following paper, communicated by Commander Kiddle, R.N., on his

CRUISE IN CENTRAL AMERICAN WATERS.

It is evident that the citizens of the great republic are somewhat jealous of the progress, indifferent as it is, of the Panama Canal, and would fain open up a competing route. For this purpose a gang of surveyors and workmen, 100 strong, are about to examine the San Juan and the Granadian lakes. While admiring the courage which prompts such undertakings, it may be pretty safely asserted that the physical difficulties, although of a different nature from those of Panama, are, from the nature of the country, more difficult to contend with than the *bête noir* of the Chagres. By referring to my diary I have roughed out my experience of the climate.

A generation since, Grey Town (St. Juan de Nicaragua) caused as much anxiety to English statesmen as Bulgaria does at the present moment. The filibusters from the ports of the United States were quietly embarked, unmolested, to found new republics in Central America, and had it not been for a climate which is particularly inimical to men of European blood, success would have attended their efforts. As it was, under Walker, "the blue-eyed man of destiny," they were for a long period supreme in the central states of the continent, much to the annoyance of Lord Palmerston, who was then Minister for Foreign Affairs.

In the summer of 1856, the great naval review being over, and a large number of ships available for foreign service, a squadron, under the late Admiral Erskine, was formed at Spithead, and ordered to rendezvous at Barbadoes, an exaggerated estimate of the strength of the American naval force having reached this country.

These ships were the *Orion*, 91 guns; *Arrogant*, 46; *Tartar*, 20; *Cossack*, 20; *Archer*, 13; *Pioneer*, *Intrepid*, and two other despatch vessels. No such force before or since has ever sailed in these waters. Nothing of importance occurred on the outward passage, and after filling up with coals and stores at Carlisle Bay, the ships made the best of their way, under canvas, towards Grey Town. The place had an evil name on all points amongst sailors of the West Indian station, a verdict which unfortunately was found to be well deserved. It was also pretty freely stated that if a ship was black-listed from any cause she was sent to this infernal climate to expiate the offence. Our fate drifted us in one long black list regardless of the effects it had on a splendid ship's company. A wag informed the captain in reply to a question on "making the land," said, "Do not have any anxiety on that point; steer when off the port for the centre of a dense rain cloud, and that will lead up to the entrance of the harbour."

During a stay, with the exception of a few short intervals, of sixteen months, these directions were scarcely an exaggerated representation of the weather. Thus, if a resident were asked in December, when it was raining in torrents, "Is this the rainy season?" "Oh, dear no, our regular rainy season commences about June. We generally consider this month one of the driest of the twelve." You mutter something not very complimentary, at what you deem a jesting reply, but after a long sojourn, find it too true. Of course, the weather in this particular year may not have been normal, for neither Colon or Pearl Islands were without their regular dry and wet seasons. I know what ought to have been the rainy months, but left the place after more than a year's experience without being certain on the point. One damp steamy morning, Round Hill, fifteen miles north of Grey Town, broke through the dark cloud which overhung the land. The surf was beating with a heavy ceaseless roar on the long line of beach, sending up clouds of spray, which partially hid the trees in the background. The sea was turbid and sprinkled with patches of yellow foam, and huge trunks of trees and grass islets from the banks of the San Juan. The port has, or had, a blind entrance, but these were unmistakable indications that it was close to.

Shortly after entering this debris, a tall sawn-faced man swarmed up the side from a canoe hollowed out from a single log, and introduced himself as pilot and harbour-master. His appearance was that of a native, an illusion dispelled by the unmistakable Yankee idiom. "Good morning, cappen. I guess you want to go into our place?" "Yes. Can you take the ship in?" "Yes, sartinly. Here, you, Antouy, hook on and drop astarn, clear of the propeller, and see that you don't break the shear, or it will be wus for you. That's right. Now, go ahead, cappen, full split, for I guess we shall have rain afore long." "Now, then, pilot, tell us what you know of Walker's movements." "Well, I calculate he is got into a pretty fix. He burned Granada a short time back, but is now pinned up in Rivas, living on hoss flesh." "Glad to hear it," was the rejoinder. "Perhaps we may now have a short stay here." "Well, I'm glad too." "Why, is he not a countryman of yours?" "Countryman! Yes, but his darned doings have stopp'd the transit, and I can barely get a living now. Time was when big steamboats came in with gold diggers from Californie, but now they goes to Aspinwall, and a West India mail steamer is all we now gets."

At the date I speak of, no one entered Grey Town Harbour for the first time without feeling a certain amount of anxiety. The entrance was formed by a sand

spit overlapping the port for some distance, built up by a struggle between the strong current of the river and the sand thrown in by the "northers." So close to the beach did it run, that in hauling up for the bar there was scant room for a large ship between the spit and the breakers on the beach to leeward. However, once inside, and the surface became as smooth as the West India Dock. It was a fair sheet of water, with good anchorage on muddy bottom, for the whole squadron, with the exception of the *Orion*. That noble ship lay some two miles out, rolling her lower deck ports under water, and exposed to the full force of the on-shore gales, in one of which she parted her cable. Before this time, the United States sloop of war, *Cyane*, had bombarded the town, and their guns not being sufficiently destructive, a party had landed, fired the stores, and destroyed their contents. It was an unwarrantable action, unworthy of a great country, for the place was unarmed, and no satisfactory explanation for the act was ever rendered. British subjects appealed to Lord Palmerston, but were informed that England could not be responsible for the losses they might sustain by settling in a foreign country.

The beach and plain were strewn with piles of bricks, rotting shingles, countless preserved meat tins and gin bottles, the remnants of its former prosperity. A few wretched huts and stores run up with lumber now occupied their place, carrying on a small trade in tortoise-shell and native produce. It made one smile to remember this was the city about which statesmen wrangled, and formidable squadrons armed to the teeth came thousands of miles to protect. Not the least annoying part of the affair was that, during the weary sixteen months, no American man-of-war put in an appearance. Later on we met their frigates at Colon, and had a friendly greeting from the officers. At the back of the town was a lagoon, lorded over by mosquitoes, of a type whose size and savagery are unsurpassed in any quarter of the globe. They are one-third of an inch in length, marked with transverse black and white bands. Their sting resembles the prick of a very fine needle, and its effect is to raise a white swelling as large as a threepenny bit. Unlike the general tribe, they make no attempt to avoid being killed, but hang on till smashed by the hand. It is curious to note the great amount of blood which one of these gorged insects will contain. If left alone after being shaken off, they attempt to fly, but give it up after a few unsuccessful efforts. They are then easily killed. A single journey to this lagoon sufficed the most adventurous for a long period, notwithstanding snipe abounded on the shores, who, evidently from the manner in which they could be approached, had the neighbourhood pretty well to themselves. Besides the annoyance from mosquitoes, there was the danger of being stung with wasps. These formidable insects built their nests on the bushes which skirted the edge of the forest, and if disturbed savagely attacked the intruder. Her Majesty's Consul at this period was a little, fever-stricken, shrivelled-up specimen of humanity, and when you looked at him and his surroundings, it made one marvel over what men will do for money and position. This gentleman resided in a mean house, on the edge of a pool of black mud, and, as a natural consequence, was literally soaked with malarial fever. He had neither wife, children, or the companionship of a single individual of his nation. He often said that the happiest period of his consulate occurred during the stay of the squadron. He died a few years after our departure, and lies in a piece of ground purchased by the officers and men of the squadron immediately after our arrival. This transaction forms a singular comment on the climate. The ships were barely anchored before a memorandum was addressed by the commodore to the officers and seamen, calling on them to subscribe to purchase, clear, and fence a piece of land for a burial ground. It was not reassuring to the weak-minded, but the money was raised and the work carried out satisfactorily. The first death occurred on board the *Orion*;

the man's messmates piously carved on the head-board which marked his resting-place, "He made the seven stars and Orion." It has, doubtless, long since been overgrown with that rank vegetation which springs up like Jonah's gourd.

The morning after our arrival an official of the Costa Rican army called on the commodore. He had voyaged down the San Juan in a canoe, hollowed out from a single mahogany tree; it was 60ft. in length, six in the beam, and would carry 100 men. It originally belonged to a woodcutter on the Rio Grande, but had been purchased by the Costa Rican Government for a river transport. As he stepped on board the captain called his attention to a large snake, which was drifting past the ship. "Ah," said the official, "you must be careful to keep those reptiles out of the ship, for some species are deadly. Yesterday my orderly perished by neglecting to carry the antidote nut with him. He was bitten by a bloodsnake in crossing a swamp, and died in a few hours in great agony, his body swelling to an extraordinary size." I may say that the antidote alluded to is a nut not unlike a nutmeg in appearance and dimensions. The botanical name, if I ever knew it, has escaped my memory. Many months after this I was sitting on a port sill in the first watch, barefooted, for paddling on the sloppy deck after dark became a fashionable method of promenading, and almost the only way in which we could take exercise. The master-at-arms stopped abreast of the port, lantern in hand, and said quietly, "Don't move, sir—a snake is between your naked feet." Gathering myself up, I made a spring clear of the reptile and then killed it with a gun handspike. It was a bloodsnake, about fourteen inches in length, and at night appeared to resemble the common earthworm in colour and semi-transparency. I regretted afterwards that I did not preserve the reptile as a memento of the place. On another occasion a rock snake, six feet in length, sprang out of the hammock nettings amidst a group of seamen. This species is harmless, but for a short time the one in question made himself master of the situation, and was not killed without considerable trouble. All these were swimmers. They swarmed up the cable, the gangway ladder, the rudder pendants, or any slack rope which happened to hang over the side, with the greatest facility, and when once on board evidently had no intention of leaving. A beautifully marked green snake coils itself on the branches of trees overhanging the river, and darts fiercely down on any one who, passing underneath, attempts to disturb it. It is said not to be venomous, but on this point I shall remain silent, for one cannot comprehend why a small reptile, without poison fangs, should dare to attack a man. In all probability, the snake which nearly closed the life of Nelson, on this identical river, was of the blood species.

The rain, as before stated, was endless, and to prevent sails and running rigging from rotting, they were unbent and unrove, the rain awnings were raised several feet up the mast, and tented to ridge chains, elevated some distance above the hammock netting. In fine weather they were eased in, and tied up, but the damp heat was so oppressive that rain, after a few hours' sunshine, was preferred. The excessive humidity destroyed or injured every perishable article; cloth clothes, especially if they had been worn, were covered extensively with mould. In appearance they might have lain on a dunghill during a night of hoar frost. Strong leather shoes suffered in a similar manner and became rotten in the sewing. Boat-oars of tough English ash which, under ordinary conditions could not be fairly broken by the strongest man, often, after a few months' use, snapped without effort.

In defiance of constant washing and scrubbing, grass grew on the hollow waterways in places where the holystones failed to grind it out. Fever soon made its appearance, and in a few weeks one-third of the ship's company were in their hammocks. The officers fared no better. The symptoms were marked by hot and cold fits, and if attended to in time seldom proved fatal. But this fever, as in the

Chagres, often ran into the bilious remittent type after the patient had been at sea a few days. Physicians must explain the cause of this anomaly: I can only record it. Human life was cheap in those days. Men were drawn from the guardship or elsewhere as ordinary stores are now drawn. The Press had no means of bringing neglect or cruelty under the notice of the public, and so we lay month after month in that terrible climate, until, to use an expression of one of the lieutenants, the crew resembled "whitewashed ghosts." If the history of the occupants of those long rows of graves in the palisades of Port Royal and elsewhere could be written, it would unfold a system of selfishness and ignorance on the part of men who were bound by every sense of honour to have avoided the cause which laid them there. In our own case the captain struggled hard to avoid going north, but the Medical Inspector General was not to be swerved from the path of duty. A time came, however, when the officers of all ranks, except the captain and myself, were in their beds. Then, and not till then, was the anchor weighed and the ship headed for Port Royal. On entering the channel leading to the harbour, the last of the engineers, who had manfully fought the fever, fainted, and the fires were drawn by the few stokers who still remained on duty. It was looked on as a remarkable and rare event at the time, that one of these subsequently had the black vomit and recovered. The officers were sent to Newcastle, 3,000 feet above the sea level, and the seamen to the hospital or lofts in the dockyard. Some died; and the remainder were so debilitated that the Medical Inspector of Hospitals recommended a trip to the north. As this article is simply an attempt to describe an event which has been lost sight of in the tremendous conflicts of recent years, in these quarters of the globe, the time spent in Halifax is passed over without comment—suffice it to say, the admiral, in his snug palace, marvelled why the ship had come north, and after a re-fit, ordered the captain to return to his station.

Grey Town was at this time full of swaggering, filibustering generals and colonels of Walker's army. He paid them in scrip, to be redeemed by the funds of the future republic. The majority of these men were natives of the Southern States, mainly from Louisiana and Texas. They were tall strapping fellows, with long flowing hair and beards, and in different garb would have made magnificent portraits of the time of the second Charles. Their dress was a blue hunting shirt, tastefully ornamented and fringed; long boots drawn over trousers, and a broad-brimmed felt or Panama hat. They were armed with a long small-bore rifle, formidable bowie-knife, and a few also carried a revolver, in the use of which they were not over-scrupulous. These men were the *élite* of Walker's brigade; the remainder were recruited from the slums of the great cities of the Union, lured on by promises of boundless wealth in the new state. The first article in the agreement accorded to each man 150 acres of the finest land on the continent, and what was of more importance, niggers to till it. One day I was watching a squad being drilled by their adjutant. He paused for a moment, scanned a heavy cloud settling over the trees at the head of the river, and said, "Kernel, I guess we had better dismiss, for whenever you see that sign there is no time to spare to get under shelter." Everyone went at the double for the sheds. I found myself between two of these warriors, who certainly did not, by their physiognomy, hail from the States. I looked at them steadily. "Ah, and it's right yer honour is. Not a bit of the Yankee is there about me. Mickey here and myself were regularly trapped. They tould us that after a little scrimmaging we should be gintlemen for life." "Why not desert? The men-of-war will receive British subjects." "Ah, yer honour, that long fellow with the beard there is always prowling round, and threatens to shoot anyone who attempts to leave the camp—and he isn't the man to stand at thrifles." This long fellow was a Colonel Lockridge.

Rumour gave him the credit of an unsparing use of his revolver to maintain discipline. Whether these two men subsequently fell in action, perished from fever, or were blown up in an explosion some time after, I was unable to learn, for I could gain no tidings of them after their defeat at Serapaqui. The defeat of this force in an attempt to storm a fort at the junction of the San Juan with the lake of Granada gave a mortal blow to Walker, and shortly afterwards he surrendered on the faith of our guaranteeing him and his forces protection and a passage to New Orleans. When this was arranged, the miserable remnant of a once fine body of men piled their arms and embarked on the English squadron. The officers of the United States Navy at Colon, to which we proceeded, refused to acknowledge them as American citizens. On the passage a large number died from fever, and there were few who had not suffered severely from the climate, wounds, or scalding. Some of the latter were fearful sights, the flesh literally peeling from their bones. The stern wheeler in which they were retreating down the river blew up. Twenty-seven were killed or died from the shock before landing. One of the worst cases amongst the survivors attracted the admiration of officers and men by his marvellous endurance of suffering. The surgeons thought recovery impossible, but he never lost heart or made a sign of pain. He reached New Orleans much improved in general health, and there were strong hopes that his wounds would subsequently heal.

Walker subsequently attempted to revolutionise Honduras, was defeated, took refuge on H.M.S. *Jeans*, was handed over to the authorities, and shot in the Plaza of Truxillo. Others later on came to the front in the war of secession. Foremost amongst these was the second in command, familiarly known by his soldiers as Bob Wheat. He was a gigantic Southerner, of commanding presence and noble features, and a born soldier. He commenced his career in the Indian wars on the frontier, but it was not until the Mexican troubles broke out that a fitting field of adventure was opened up. At the close, he had risen to the grade of colonel. The Mexicans subsequently offered him command of their artillery, but the honour was declined. He then studied law and practised at the bar until induced by Walker to join his band of filibusters. Here he did the principal part of the fighting, capturing the forts commanding the entrance to the lake, and, in the retreat to the sea with his disheartened followers, he kept the Costa Ricans at bay till British interference saved them from annihilation. In the war of secession he threw in his lot with the South, and fell at the second Bull's Run, leading on his brigade.

The sea subsequently breached the spit forming the harbour and destroyed it. This fact should make engineers pause before recommending the route—nor are the three sets of rapids between the sea and the lake of Granada to be lightly considered.

The lake itself is 100ft. above the level of the sea. Thence to Realejo, the terminus on the Pacific, is about fifteen miles. The cuttings in this section are formidable, but insignificant in comparison with the difficulties arising at the rapids. It has taken a long series of years and an enormous expenditure to clear the water-way from the Hudson to the inside channel of Long Island. In this instance, the first of American engineers had unlimited means at his command, and was favoured by a climate which permitted men to work with impunity throughout the year. On the San Juan there is not one day in the 365 for which the same can be said, if men of European races are employed. The bar at the entrance of the river suddenly shoaled from 23ft. to 3ft., and imprisoned two Italian brigs which were after two years abandoned at their moorings. The recent filling in of the Gizancoales, the port of entry for Captain Ead's ship railway, is another significant comment on the impracticability of successfully dealing in a commercial sense with shifting bars. A single norther is capable of not only undoing the works of

man, which may have taken him years to erect, but of reversing those of nature. The river and the volcano admit of no bounds to their destructive action, and wherever there is a prospect of either overflowing their natural boundaries, the engineer should be chary in recommending enterprises to the favourable consideration of the public. His profession is an exact science, and ought to be dealt with accordingly.

It would serve no good purpose to allude to the many plans which have been drawn up by the "high contracting parties" for piercing the isthmus at various points. Up to the present, the wire pullers of the bankrupt states through which the canal was supposed to pass have been the only gainers. Honduras, with a population of 350,000, Indians included, by skilful manipulation, got ten millions sterling out of John Bull for a single enterprise. Costa Rica, with 250,000 inhabitants, raised millions in the open market. Where are principal and interest of these and other loans? Echo answers "Where?" It is not too much to say that the most ordinary knowledge of physical geography would have prevented unsuspecting dupes from investing their savings in such disastrous securities. Take the Honduras loan for example. The interest amounted to a million sterling, which made every man, woman, and child in the country responsible to the government for the payment of £28 11s. annually, on this single loan. Further comment is needless. The fact is, in all these undertakings, we have too much theory and too little practice, notably in countries where, in addition to natural barriers, fevers of a lowering if not always of a deadly type have to be encountered. Except on the West Coast of Africa there is no country on the face of the globe more inimical to the mental and bodily powers of the white man than the swamps of Central America. Probably the death statistics of the Panama Canal will never be known. Labourers come and go, or die in hospital, without name or record, and leave no trace behind them, any more than the beast that perishes. At some remote period the world will know the number of pounds or francs the undertaking has cost, but the mortality, never. Up to the present the shareholders have shown the most marvellous trustfulness in the judgment and promises of the great Frenchman, evidently under the impression that a genius which triumphed over the difficulties engendered by the sands of Egypt will not be foiled by the floods of the Chagres or the rocks of the Cordilleras. Thus far, contentment has certainly been induced by the pernicious and unbusiness-like plan of paying interest out of capital, but there are signs that even this source of income is in jeopardy. Although many reports on the small advance made are doubtless exaggerated, the crisis is certainly a grave one, nor is it lessened by the knowledge that M. de Lesseps is over eighty years of age, and, by his appeals to the French public, evidently uneasy at the prospect of seeing his great work swamped under financial difficulties. Fortunately, Englishmen, profiting by dear-bought experience, avoided involving themselves in this unfortunate undertaking; but when the collapse takes place, it is difficult to surmise what the results may be in the political and monetary world.

The paper was listened to with much interest, and a general conversation ensued.

Very hearty thanks were given to Commander Kiddle for his paper, and to the chairman.

NOTE.—Lake Nicaragua is a sheet of fresh water 110 miles long, and from 30 to 50 miles broad. Its elevation above the Pacific (from which it is separated by a low range of hills, at one point only 48ft. higher than the lake itself) is little more than 100ft. The only river flowing out of the lake is the San Juan, which unites it with the Caribbean Sea. Its islands are numerous, a cluster of several hundred islets lying round the base of the volcano of Mombacho, in the north-west of the lake.—*Chambers.*

SIXTIETH MEETING

Of the Society, held in the Memorial Hall, Friday, February 10th, 1888, at eight o'clock p.m., Mr. MARK STIRRUP, F.G.S., in the chair.

The Rev. THOS. WAKEFIELD addressed the members on "The Galla Country, East Africa" (see page 1). The address was illustrated with maps and a series of large views of the country, made from sketches taken by Mr. and Mrs. Wakefield.

The address was listened to with great interest, and questions were asked, and some discussion took place, Messrs. Phillips, Jarratt, Sowerbutts, and others, taking part.

It was resolved that the Society tender its very best thanks to Mr. Wakefield for his exceedingly interesting address. Mr. WAKEFIELD responded.

Thanks to the Chairman closed the meeting.

SIXTY-FIRST MEETING

Of the Society, held in the Library, Wednesday, February 15th, 1888, at 7-30 p.m., Councillor WM. SHERRATT in the chair.

The minutes of meetings Nos. 56 to 60 (December 21st to February 10th, 1888) were read and approved.

The following presentations were announced :—

Donation to the Society's funds. Mr. R. Bates, 20s.

Books.

The Borderlands of Europe. Two vols. Mr. J. Irlam.

The Co-operative Annual, 1888. The Co-operative Wholesale Society.

Do. for several years. The Secretary.

Mr. T. Gregory, F.C.A., and Mr. J. C. Blake were elected the Auditors of the Society.

Mr. THOS. NEWBIGGING, C.E., addressed the members on "The Heart of Europe from a Railway Car, being Notes of a Journey from London to Saloniki." (See p. 14.)

The address was illustrated by a fine map of Europe, published by Artaria and Co., Vienna.

Questions were asked and some discussion took place on the address, Messrs. Jarratt, Belisha, Irlam, and others taking part therein.

A very hearty vote of thanks was given to Mr. Newbigging for his admirable paper, on the motion of Mr. BELISHA, seconded by Mr. M. STIRRUP. Mr. NEWBIGGING responded.

A vote of thanks to the Chairman, for his conduct in the chair, closed the meeting.

SIXTY-SECOND MEETING

Of the Society, held at the Memorial Hall, Wednesday, March 7th, 1888, at eight o'clock, p.m. Professor HORACE LAMB, M.A., took the chair, in the unavoidable absence of Dr. Greenwood, the Chairman of the Council.

The CHAIRMAN said they all understood the exceptional authority with which his lordship (the Bishop) could speak on the subject on which he had to address them, but what might be more or less of common knowledge to them happened to be matter of more immediate knowledge to himself (Professor Lamb), for he had the happiness to live in Australia, in a neighbouring colony to that in which Dr. Moorhouse

laboured, for almost exactly the period during which Dr. Moorhouse exercised his functions there; and therefore he had every opportunity, as indeed had every inhabitant of Australia who kept his ears and eyes open, of knowing the energy and the vigour with which his lordship explored every nook and corner of the vast diocese committed to his care. Not content merely with his own special spiritual functions, the administration of the diocese, it was well known that Dr. Moorhouse threw himself with energy into every public movement, and with such effect, and so well were his services in those directions appreciated, that he knew the people of Australia, not merely in his own diocese, but far beyond it, took it not a little unkindly when in obedience to the command which brought him to England he was forced to sever the connection which had become so dear to them. Dr. Moorhouse had had opportunities of studying the colony of Victoria from the inside, and if the people of any part of Australia had been asked to name a spokesman to bring before English people the advantages or disadvantages of Victoria, or of Australia in general, and the merits or demerits of its inhabitants, they would have chosen none more willingly than his lordship.

After some merely formal business, the Right Reverend the LORD BISHOP of MANCHESTER addressed the members on the subject of "Victoria." (See p. 38, and map.)

The address was illustrated by a large map of the colony, very kindly placed at the service of the Society by the Agent-General of Victoria, London.

The Rev. L. C. Casartelli, M.A., Ph.D., had also presented the Society with samples of a large variety of seeds grown in the colony, which were exhibited, and attracted much attention.

At the close of the address Mr. HAMER asked a question as to the progress of Melbourne, and other inquiries having been made, the Bishop replied to them very fully.

Mr. S. OGDEN, J.P., then moved the following resolution: "That the best thanks of the Society be given to His Lordship, the Bishop of Manchester, for his very interesting address, and to the Agent-General of Victoria, Sir Graham Berry, for his kindness in providing the large map—for use that evening." He said that Great Britain possessed a magnificent inheritance, not only in Australia but in her many other colonies. Australia was as large as Europe, they had been cold; and then there was Canada, which was forty times the size of Great Britain, and yet having a population a very little larger than that of London. But Australia, whilst as large as Europe, had a population less than that of London. In this country we were not only in the habit of thinking that we were overpopulated, but some apprehension was felt as to what was to be done with this prolific Anglo-Saxon race. But in Canada and Australia, as His Lordship had said, room for 100 millions of population could be found with the greatest ease. They had only to be sent or induced to go out and they would become useful and prosperous members of society; but more than that, they would confer prosperity upon those left behind. The exports of British goods to Australia amounted to about £15 per head of the population, whilst the 250 millions of Hindostan did not import from this country (to say nothing of £15 per head), 15s. per head, as a matter of fact, not 7s. 6d. per head. What an inducement, therefore, to get our own countrymen to go out and populate those grand regions of Australia! He was glad to see that His Lordship had recognised and emphasised the beneficial influence which the discovery of gold in Australia, in 1851, had had on this country. It was, no doubt, the finding of that gold there, and in California, that had lifted England out of the depth of distress and difficulty in which she was at that time placed; and it was, no doubt, owing in great measure to the fact that in those years, and for some years afterwards, gold was found at the

rate of 35 millions a year; whereas it was now not being found in greater quantity than 17 millions a year, with a population and trade respectively increasing and developing, that the great depression in prices had come about, and that notwithstanding that the volume of trade was greater now than ever known, the decline in prices left trade as bad, and ourselves in the same plight, as in 1851. He had very great pleasure in moving the resolution.

Mr. J. F. HUTTON, in seconding the resolution, said he would like to add to Mr. Ogden's remarks a word of welcome on behalf of the Manchester Geographical Society to the Lord Bishop. It was not only a pleasure to the Society to have his lordship amongst them, but his address that night had been of a nature to enchain the interest of those present. When Her Majesty came to the throne there were not 200 British people living in Victoria. They had just heard that the population had increased to over 1,000,000, and that to the hopes of future prosperity of the colony there seemed no bounds. The holdings of these million of people, that is the rateable property, were of the value of over 100 millions sterling. There was raised by taxes and revenue per annum, about £6 per head of the population. Great Britain had, in Victoria, about the smallest and youngest of our colonies, consisting of only one thirty-fourth part of that vast island of Australia—a remarkable instance of almost boundless prosperity. Was not the responsibility of the home country very great, with that enormous land lying waiting for the population, and with the prevalent complaint of scarcity of employment here? Was it not incumbent upon us to do all in our power to cement the relations between us and Australia, and at the same time to assist our fellow-countrymen to go out and take part in the immense work of promoting the cultivation of that country? Perhaps there did not seem a great desire on the part of the Australians to receive our people, as the working classes there would wish to maintain for themselves the present rates of wages. They fear that an influx of labour would tend to diminish those rates. As far as Manchester was concerned, it was essential that greater encouragement should be given to our commerce with Australia, a result, however, only to be brought about by the reduction of the heavy import duties levied by Victoria and some of the colonies.

HIS LORDSHIP responded, and Mr. J. F. Hutton having taken the chair, the BISHOP moved, Mr. HENRY WOOD seconded, and Mr. MARK STIRUP, cordially supported a hearty vote of thanks to Professor Lamb for his kindness in occupying the chair. The motion was carried unanimously.

SIXTY-THIRD MEETING

Of the Society, held at the Manchester Free Reference Library, King Street, Saturday, March 17th, at three o'clock p.m., Councillor B. T. LEECH in the chair.

The meeting was held, by permission of the Committee, for the purpose of seeing a number of the works of geographical interest which the Library contains. The books were laid out on tables in the "Lower Reading Room," and were described by Mr. W. R. Credland, Deputy Chief Librarian. It was pointed out that the Library was especially rich in works of travel and exploration, both ancient and modern, but the large number of books of this character precluded anything more than a mere selection being laid before the members.

For the literature referring to the description and exploration of particular countries and localities it would be necessary to consult the catalogues of the Library, and, where these failed, to consult the librarians themselves. Attention was called to

the stores of geographical information which were to be found in certain Parliamentary Blue-books, in the consular reports of our own and the United States Governments, and in reports issued by the authorities of many of the colonies and dependencies.

The CHAIRMAN welcomed the Society on behalf of the Free Libraries Committee.

The SECRETARY explained the objects of these visits to the various Libraries and Museums, and several hours were very pleasantly spent in examining the books exhibited by Mr. Credland, and in making comparison between works of a similar kind in other libraries.

Mr. H. Y. WOOD moved and Mr. J. HAINSWORTH seconded a very hearty vote of thanks to the Libraries Committee, the Librarians and their Assistants, and the Chairman, for his kind presidency, which was heartily carried.

Mr. LEECH responded, and the members dispersed at 6-30 p.m.

A list of the more interesting general geographical treatises which were shown is appended.

List of some of the Books on Cartography and Geography in the Manchester Free Reference Library, King Street, exhibited to the members of the Society.

ANCIENT AND MEDIEVAL GEOGRAPHY.

- Arrian's Voyage Round the Euxine Sea, translated, with a Geographical Dissertation. 1805. 4to. 769.
- BEARD, J. R. Biblical Atlas. 1849. 8vo. 1608.
- BEVAN, W. L. Ancient Geography. 1875. 12mo. 386 B 26.
- BOBRIK, H. Geographie des Herodot. 1838. 8vo, with Atlas Fol. 48064.
- BOCHARTUS, S. Geographia Sacra. 1681. 4to. 35088.
- BUNBURY, E. H. History of Ancient Geography. 1879. 8vo. 2 vols. 387 B 31.
- CELLARIUS, C. Notitia Orbis Antiqui. 1731-2. 4to. 4203.
- CLVERIUS, P. Sicilia, Italia, et Germania Antiq. 1619-31. 4 vols. 4to. 32327.
- Geographi Græci Minores. Edidit C. Müllerus. 1855-61. 2 vols. 8vo. and Atlas 38051.
- Hereford Mappa Mundi (circa 1300). Fol. With description by Rev. F. T. Havergal. Also, Mediaeval Geography: an Essay in illustration of the Hereford Mappa Mundi, by W. L. Bevan and H. W. Phillot. 1873. 8vo. 37624.
- KIEPERT, H. Ancient Geography. 1881. 12mo. 389 A 75.
- KIEPPEN, A. L. The World in the Middle Ages: an Historical Geography. 1854. Fol. 27956.
- LAURENT, P. E. Manual of Ancient Geography. 1840. 8vo. 13649.
- MELA, POMONIUS. De Situ Orbis libri tres. 1809. 8vo. 15711. Also edition of 1737. 36318.
- MOLL, H. Geographia Classica. The Geography of the Ancients. 1727. 4to. 36358.
- NEARCHUS. Voyage from the Indus to the Euphrates. Ed. by Vincent. 1797. 4to. 16735.
- PROCLUS. De Sphæra; Cleomedis de Mundo; Arati Phænomena; Dionysius Apri Descriptio Orbis habitabilis. J. Honteri de Cosmographiæ rudimenta. Edidit M. Hopperus. 1561. 8vo. 48319.
- PTOLEMY, C. Geographia. 1541. Fol. 36619.

- PTOLEMY, C. *Geographia*. Vol. I., 1883. Editio nova. 8vo. 344 A 32.
- PYE, C. *Dictionary of Ancient Geography*. 1803. 8vo. 393 B 16.
- SMITH, W. *Dictionary of Greek and Roman Geography*. 1856. 8vo. 21930.
- Standard Library Atlas of Classical Geography*. 1861. 31846.
- STRABO. *Geographica*. Ed. C. Muller et Dübner. 1853-7. 2 parts. 38051.
- STRABO, *Geography of*. Translated by Hamilton and Falconer. 1854. 8vo. 3 vols. 34464.
- VINCENT, W. *The Periplus of the Erythrean Sea*. 1800-9. 4to. 2 vols. 24673.
- VINCENT, W. *The Commerce and Navigation of the Ancients in the Indian Ocean*. 1807. 4to. 2 vols. 24675.
- WELLS, E. *An Historical Geography of the Old Testament*. 1721-8. 8vo. 3 vols. 18137.
- WELLS, E. *An Historical Geography of the New Testament*. 1734. 8vo. 2 vols. 28138.
- WINSOR, JUSTIN. *Bibliography of Ptolemy's Geography*. 1884. 8vo.

COLLECTIONS OF VOYAGES AND TRAVELS.

- AINSWORTH, W. F. *All Round the World: an illustrated record of Voyages, Travels, &c.* 4to. 4 vols. 31761.
- ASTLEY, T. *New General Collection of Voyages and Travels*. 1745-7. 4to. 4 vols. 887.
- Cartas de Indias, publicadas por primera vez el Ministerio de Fomento*. Fol. 1877. 400 H.
- CHURCHILL, J. *Collection of Voyages and Travels*. 1704-47. Fol. 8 vols. 4799.
- Collection of Modern and Contemporary Voyages and Travels*. 1805. 8vo. 6 vols. 24733.
- DRAKE, E. C. *New Universal Collection of Voyages and Travels*. 1768. Fol. 7206.
- FORSTER, R. P. *Collection of Celebrated Voyages and Travels*. 1816. 8vo. 4 vols. 5798.
- HAKLUYT, R. *Collection of Early Voyages*. 1809-12. 4to. 5 vols. 10310.
- Hakluyt Society Publications*. 1847-88. 8vo. 75 vols.
- HARRIS, J. *Navigantium atque Itinerantium Bibliotheca*. 1744-8. Fol. 2 vols. 10665.
- KERR, R. *General History and Collection of Voyages and Travels*. 1824. 8vo. 18 vols. 13157.
- Le Tour du Monde*. 1880-87. Fol.
- Lettres Edifiantes et curieuses ecrites des Missions Etrangères par quelques Missionnaires de la Compagnie de Jesus*. 1717-63. 8vo. 30 vols. 36348.
- Lettres Edifiantes. Nouveaux Memoires des Missions de la Compagnie de Jesus dans le Levant*. 1753-5. 12mo. 9 vols. 36347.
- Lettres Edifiantes et curieuses concernant l'Asie, l'Afrique, et l'Amerique, avec quelques relations nouvelles et des notes géographiques et historiques*. 1838. 8vo. 4 vols.
- MAVOR, W. *General Collection of Voyages and Travels*. 1810. 18mo. 28 vols. 15602.
- NAVARETTE, M. F. DE. *Collecion de los Viajes y Descubrimientos que hicieron por mar los Españoles desde fines siglo XV*. 1829-59. 4to. 5 vols. 399 D 14.

- New Discoveries concerning the World and its Inhabitants. 1778. 8vo. 24732.
 PINKERTON, J. General Collection of Voyages and Travels. 1808-14. 4to. 17 vols. 18332.
 POLO, M. Book of Ser Marco Polo, concerning the Kingdoms and Marvels of the East. 1871. 8vo. 2 vols. 34060.
 POLO, MARCO. Travels. Translated by Marsden. 1818. 4to. 18613.
 PROVOST, A. F. Histoire générale des Voyages. 1746-89. 4 vols. Vols. 1 to 19. 18991.
 PURCHAS, S. Hakluytus Posthumus; or, Purchas, his Pilgrimes, containing Voyages and Peregrinations, &c. 1625-6. Fol. 5 vols. 19300.
 RAY, J. Collection of Curious Travels and Voyages. 1693. 8vo. 2 vols. 19576.
 STEVENS, J. New Collection of Voyages and Travels. 1711. 4to. 2 vols. 34445.
 TERNAUX, H. Voyages, Relations et Mémoires Originaux. 1837-41. 8vo. 20 vols. 23330.

GENERAL GEOGRAPHY, INCLUDING ATLASES.

- AA, P. VAN DER. Galerie Agréable du Monde. 1757-61. Fol. 8 vols. Imperfect set. 9240.
 Atlas and Geography of the World. 1880. Fol. 387 H 1.
 Bailliere's New South Wales Gazetteer. 1866. 8vo. 46743.
 BELL, J. Geography. 1832. 8vo. 6 vols. 389 C 1.
 ELACK, A. & C. General Atlas of the World. 1882. Fol. 82219.
 BLACKIE, W. G. Imperial Gazetteer. 1878. 8vo. 4 vols. 103 M.
 BOHN, H. G. Pictorial Handbook of Modern Geography. 1862. 8vo. 32019.
 BOUILLET, M. N. Dictionnaire d'Histoire et de Géographie. 1880. 8vo. 385 D 1.
 BRADSHAW, G. General Atlas. Manchester, 1836. 4to. 48843.
 BRAYSHAW, T. Metrical Mnemonics Applied to Geography. 1849. 12mo.
 CASARTELLI, L. C. Commercial Geography, 1884. 8vo. 63 A 10.
 CLARK, S. Mirrour or Looking-glass both for Saints and Sinners. Whereunto is added a Geographical Description of all the Countries in the Known World. 1671. 4to. 2 vols. 32304.
 CLEGG, JOHN. Elements of Geography. Liverpool, 1795. 4to. 35316.
 COLANGE, L. DE. National Gazetteer of the United States. 434 C 2.
 COLLIER, J. Great Historical, Geographical, Genealogical, and Poetical Dictionary. 1701. Fol. 2 vols. 29073.
 COLTON, G. W. General Atlas. 1874. Fol. 49040.
 COLTON, G. Atlas of America. 1864. Fol. 32347.
 Comparative View of Ancient and Modern Geography. 1814. 8vo. 16641, 23618, 24346, 26527.
 DARBY, W. Universal Gazetteer. 1827. 8vo. 6356.
 DESCHAMPS, P. Dictionnaire de Géographie, Ancienne et Moderne, à l'usage du libraire et de l'amateur de livres. 1870. 8vo. 32535.
 DORGÈRE, P. Géographie de la France. 1866. 18mo. 35053.
 DURUY, V. Cahiers de Géographie Historique. 1840. 12mo. 7443.
 ECHARD, L. The Gazetteer, or Newsman's Interpreter: being a Geographical Index for the true understanding of all Modern Histories of Europe. 1707. 12mo. 7554.

- Edinburgh Gazetteer. 1822. Svo. 6 vols. 9368.
 Elementi di Geografia. 1872. Svo. 35668.
 EMBACHER, F. Lexikon der Reisen und Entdeckungen. 1882. 12mo. 410 A 5.
 EMERSON, W. Cyclomathesis. 1763-70. Vol. 9. Geography. 7902.
 FLECHAMBAULT, R. Géographie Générale. 1866. 18mo. 35053.
 FONCIN, P. Géographie Générale. 1887. 4to. 434 E 19.
 FREEMAN, E. A. Historical Geography of Europe. 1881. Svo. 2 vols. (2nd vol. Maps.) 385 C 7.
 Gazetteer of the World. 1850-7. Svo. 14 vols. 26605.
 General Atlas. 1721. Fol. 393 G 5.
 Geographical Magazine. 1876. Svo. 46439.
 Geography for Young People. Liverpool, 1803. 12mo. 26856.
 GUTHRIE, W. New Geographical, Historical, and Commercial Grammar. 1771. Svo. 2 vols. 28178.
 HALLWORTH, A. Geography Simplified. Manchester, 1827. 392 C 69.
 HOLBERG, BARON L. Introduction to Universal History. To which is prefixed a Short System of Geography. 1758. Svo. 11411.
 HOLLAND, J. System of Geography. Manchester, 1802. 12mo. 30639.
 HUGHES, W. Remarks on Geography as a Branch of Popular Education. 1847. Svo. 11831.
 HUNTER, W. W. Imperial Gazetteer of India. 1881. Svo. 12 vols. 385 B 23.
 Second edition, 1885. Svo. 9 vols. 422 E 1.
 INGRAM, J. An Inaugural Lecture on the Utility of Anglo-Saxon Literature, to which is added the Geography of Europe, by Orosius. 1807. 4to. 27963.
 JOHNSTON, A. K. Royal Atlas of Modern Geography. 1872. Fol. 36028.
 JOHNSTON, K. Index Geographicus. 1864. Svo. 48224.
 JOHNSTON, W. & A. K. Historical Atlas. 1880. 2 vols. 388 F 27.
 JUNG, K. E. Handelsgeographie. 1882. 12mo. 410 A 19.
 KEERE, P. La Germanie inferieure de Petrus Keerius. 1621. Fol. 27494.
 KOCH, G. A. Deutsch Lateinisches Wörterbuch der Geographie, 1835. Svo. 13344.
 LANGUET DU FRESNOY. New Method of Studying History, Geography, and Chronology. 1730. Svo. 2 vols. 13570.
 LAS CASES, A. E. D. M. J. de. Historical, Genealogical, and Geographical Atlas. 1813. Fol. 36123.
 LAVOISNE, M. Complete Atlas. 1820. Fol. 13660.
 Letts's Popular Atlas. 1883. Fol. 396 H 59.
 Lippincott's Gazetteer of the World. 1883. Svo. 296 G 13.
 MALTE-BRUN, C. & BALBI. System of Universal Geography. 1849. Svo. 15024.
 MALTE-BRUN, C. Universal Geography. 1822-3. Svo. 9 vols. 15023.
 M'CULLOCH, J. R. Dictionary, Geographical, Statistical, and Historical, of the World. 1851-2. Svo. 2 vols. 14683.
 MARKHAM, C. R. Fifty Years' Work of the Royal Geographical Society. 1881. Svo. Includes classified lists of papers and maps in the Journals and Proceedings of the Royal Geographical Society.
 MONIN, V. Atlas de la France. 1833. 67 P 19
 MOXON, J. Tutor to Astronomie and Geographie. 1670. 4to. 33769.
 MURPHY, W. Comprehensive Classical Atlas. 12mo. 33782.

NEWBERY, J. Geography made Familiar and Easy to Young Gentlemen and Ladies. 1776. 16mo. 38243.

Ocean Highways. The Geographical Review. 1874-5. 46439.

OGILBY, JOHN. Geographical Works :

1. Britannia, or England and Wales Actually Surveyed. 1698. Fol. 17140.
2. Atlas Japannensis. 1670. Fol. 17141.
3. Africa. 1670. Fol. 17142.
4. America. 1671. Fol. 17143.
5. Asia : the first part (Persia). 1673. Fol. 17144.
6. Atlas Chinensis. 1671. Fol. 33878.

OLIVER & BOYD. Pronouncing Gazetteer of the World. 1880. 386 B 25.

Panorama of Europe ; or a New Game of Geography. 1813. 8vo. 9422.

PARIS, L'ABBE. Elements of Geography. Translated by James Birchall. Manchester, 1805. 12mo. 26867.

PEMBLE, W. A Briefe Introduction to Geography. Oxford, 1669. 4to. 17973.

Petermann's Mittheilungen. 1861-88. 4to. (In progress.)

PRICE, T. Geographical Progress of Empire and Civilisation. 1847. 8vo. 19019.

QUIN, E. Historical Atlas. 1830. Fol. 19357.

RECLUS, E. Universal Geography. 8vo. 12 vols. 434 E 1.

Revue Géographique. 527 C.

Royal Geographical Society's Journal. 1832-80. 8vo. 9415, 46441.

Royal Geographical Society's Proceedings. 1857-88. 8vo. 46442.

RUDOLPH, H. Vollständigstes Geographisch-Topographisch-Statistisches Orts-Lexikon von Deutschland. 1867-8. 4to. 2 vols. 34216.

SADIK ISFAHANI. Geographical Works. Translated from the Persian by Ouseley. 1832. 8vo. 34232.

SANSON. Atlas. 1692. Fol. 393 G 22.

SANSON. Cartes du Monde. 1666. Fol. 393 G 31.

SARGEANT, A. M. Easy Lessons in Geography. 12mo. 34256.

SELLER, J. A Pocket Book containing severall Choice Collections in Geography. 1700. 8vo. 36828.

SHAW, N. Royal Illustrated Atlas of Modern Geography. Fol. Including a Bibliography of Geography. 34333.

SPANHEIM, F. Opera. Tom. I. 1701. Geographia Sacra et Ecclesiastica. Fol. 26954.

STANFORD, E. Compendium of Geography and Travel. 8vo. 5 vols. 327 C 1.

1. Asia. By A. H. Keane.
2. Africa. By Keith Johnston.
3. North America. By Hayden and Selwyn.
4. Central America, West Indies, and South America. By H. W. Bates.
5. Australasia. By A. R. Wallace.
6. Europe. By Sir A. Ramsay.

STEPHENS, H. Dawn of British Trade in the East Indies. 1886. 8vo. 422 E 20.

STIELER, A. Hand Atlas. 1879. Fol. 50306.

WALKER, H. B. Standard Atlas of Canada. 1878. Fol. 50476.

WATERSTON, W., & BURTON, J. H. Cyclopaedia of Commerce, Mercantile Law. Finance, and Commercial Geography. 1847. 25191.

- WILKES, CHARLES. Narrative of the United States Exploring Expedition. 1838-42. 4to. 6 vols. 25743. The Scientific Memoirs are contained in additional volumes.
- WILTSCH, J. E. T. Handbook of the Geography and Statistics of the Church. 1859-68. 8vo. 2 vols. 37364.

BRITISH ISLANDS.

- ASTON, J. Lancashire Gazetteer. 1822. 8vo. 890.
- BARTHOLOMEW, J. Gazetteer of the British Isles. 1887. 8vo. 434 E 18.
- CASSELL, J. County Atlas of England and Wales. Fol. 32221.
- CLARKE, S. R. New Lancashire Gazetteer. 1830. 8vo. 28085.
- GREENWOOD, C. Maps. 1. Cheshire, 1819. 2. Derbyshire, 1825. 3. Lancashire, 1818. 4. Nottinghamshire, 1826. 5. Yorkshire, 1817.
- GROOME, F. H. Ordnance Gazetteer of Scotland. 1884. 8vo. 6 vols. 434 C.
- Maps of Manchester and Salford :

BERRY. 1751. 393 C 17.	Ordnance Survey (5ft. to a mile),
CORBETT. Roman Manchester.	1848-50. 24183.
334 Q 6.	PIGOT. 1811. 47370.
CORNISH. 1857. 334 Q 6.	SIMMS. 1858. 49752.
DUFFIELD. 1845. 47371.	SLATER. 1841. 38198.
HEYWOOD. Greater Manchester.	THORNTON. 1807. 47369.
1887.	THORNTON. 1831. 27766.
KELLY. 1881. 434 D 7	Plan of Manchester and Salford. 1842.
LAURENT. 1793. 33392.	15079.

- National Gazetteer of Great Britain and Ireland. 1868. 8vo. 3 vols. 32813.
- Ordnance Survey Maps. England, Ireland, and Scotland. Scale one inch to the mile.
- Lancashire. Six inches to a mile.
- Manchester. Five feet to a mile.
- Parliamentary Gazetteer of England and Wales. 1843. 8vo. 4 vols. 9369.
- Parliamentary Gazetteer of Ireland. 1846. 8vo. 3 vols. 33201.
- Philips's Handy Atlas of England, Wales, Scotland, and Ireland. 1882. 12mo. 4 vols. 302 G.
- PIGOT & CO. Pocket Topography and Gazetteer of England. 8vo. 2 vols. 18313.
- SHARP, J. A. New Gazetteer, or Topographical Dictionary of the British Isles and Narrow Seas. 1852. 8vo. 2 vols. 21327.
- Shropshire Gazetteer. 1824. 393 B 35.
- SLATER, I. New British Atlas. Manchester. Fol. 21680.
- SPEED, JOHN. The Theatre of the Empire of Great Britain. County Maps, &c. 1676. Fol. 22263.
- STEPHENS, F. Topographical Dictionary of Great Britain and Ireland. 1867. 12mo. 434 A 25.
- Topographical, Statistical, and Historical Gazetteer of Scotland. 1842. 8vo. 2 vols. 34287.

CATALOGUES.

- Catalogue of the Library of the Royal Geographical Society. 1865. 8vo. 28622.
- Classified Catalogue of the Library of the Royal Geographical Society. 1871. 8vo. 46440.

Catalogue of the Printed Maps, Plans, and Charts in the British Museum. 1885. Folio. 2 vols. 298 H 21.

QUARITCH, B. Catalogue of Books on the History, Geography, and Philology of America, Australasia, Asia, and Africa. 1886. 8vo. C 95.

ZUCHOLD. Bibliotheca Historico-Geographica. 1853-61. 8vo. 9 parts. 27184. A systematic catalogue of publications during the years 1853 to 1861.

Reference for recent books should also be made to Mr. Fortescue's "Subject Index of the Modern Books added to the Library of the British Museum in the years 1880 to 1885" (293 G 24), to Low's English Catalogue and Leyboldt's American Catalogue; also to the Encyclopædia Britannica, Brockhaus's Conversations-Lexikon, Chambers's Encyclopædia, and the Statesman's Yearbook.

SIXTY-FOURTH MEETING

Of the Society, in the Library, Wednesday, March 21st, 1888, at 7-30 p.m.; Mr. T. JARRATT in the chair.

The minutes of the 61st, 62nd, and 63rd meetings were read and approved.

The election of the following new members was announced:—

ORDINARY: Mr. Alf. J. Ablett, Mr. A. J. Bles, Mr. Kenneth Cameron, Mr. Jeremiah Garnett, Mr. James B. Shaw, Mr. Charles E. Taylor.

ASSOCIATES: Mr. Peter Davies, Miss Leech, Mr. John Sankey, Mrs. C. T. Watson.

The following presentations were also announced:—

A large number of Blue Books. By Sir W. H. Houldsworth, Bart., M.P.

A number of Handbooks to the Manchester Free Libraries. By Free Libraries Committee.

Handbooks to Canada. By Mr. A. Wainwright.

Handbuch der Geographie. By Dr. M. F. Bolger. 1830. By the executors of the late Dr. Samelson.

A very beautiful Map of Chatham Islands. Printed by the Government of New Zealand.

And the acquisition by purchase of

Photographs of the Congo.

Handbook to Canada.

A paper on the diagrams exhibited by the Society at the Jubilee Exhibition was read by the SECRETARY.

THE SOCIETY'S DIAGRAMS AT THE JUBILEE EXHIBITION.

At the Jubilee Exhibition, last year, a considerable wall-space was allotted to us, which we covered with diagrams having relation to commercial geography, and which dealt with the raw products and manufactures of England in particular, and the world in general.

We also exhibited a large diagram, which, as far as we were able to obtain the information, showed the tariffs of the world. A request has been made to us to allow these diagrams to be published. We have no objection whatever to that being done, but the diagrams were made somewhat hurriedly, and are consequently by no means perfect. In point of fact, it is quite impossible to make diagrams of the kind perfect, as, having to be drawn on a large scale, they must be roughly handled, with a view to give graphic effect rather than scientifically exact information.

We propose, in relation to these diagrams, that the "Victorians" shall, during the summer months, spend some time in reducing them to a small scale, and com-

pleting them in such a form that in the course of the next session we may have them reproduced in the Journal.

The first diagram is on the distribution of gold. We have had a paper on this subject by a very able man, Mr. Cornish. At the British Association there was a paper read on the same subject, treating it on the same lines, and a report of this latter will be found in the transactions of the British Association.

The information from these two papers, from various Government Blue-books, from the Returns of the Board of Trade, and from various travellers and explorers' reports, goes to show that there is hardly a country on the face of the globe where gold is not found. On referring to "Mulhall" (book published in 1881), we find that he gives the total production since 1870, for eleven years, as £201,200,000, and silver as £159,600,000, or a total for the two metals of £360,800,000, or, in round numbers, £361,000,000. In giving the source whence gold is got, he mentions the United States, Australia, Spanish America, and Russia, and then says, "&c." "Russia, &c.," gives a very wide margin of possibilities. Speaking of the places where coin is minted, he shows that there has been £526,000,000 of coin minted, yet the production of the mines in that period has only been £361,000,000. Taking the minting as £527,000,000, and the metal produced as £360,000,000, what becomes of the difference? Included in that minting must be remembered £40,000,000 sterling reminted by Germany of standard French gold. This has, of course, to be deducted from the amount actually minted. That shows what an enormous amount of gold has been withdrawn from the resources of the world—it not having been produced from the mines during the period of 1870-1881. "Russia, &c.," may mean anything. Russia is estimated to produce something like from five to ten millions sterling yearly. The gold got in Russia, mostly from the eastern side of the Ural Mountains, is very carefully kept in the cellars of the Imperial Bank, and not allowed to go into circulation, silver coin and paper money being circulated.

When we made up our map we made a red stroke on it to represent gold. This stroke extends right away from Alaska to Patagonia; that stroke can be made right across, what we may call the thick end of the leg of mutton (South America), and right across the north of British, Dutch, and French Guiana. No doubt there is gold-bearing stratum right down the northern continent. Gold has been found on the East of Africa, where there is a considerable gold-bearing tract of country. Consul O'Neill has said, over and over again, that such is the case, and it has been demonstrated that the gold-producing country, from the Transvaal to the Zambezi, will become one of the most extraordinary things of our lifetime. We have papers from the Transvaal, from Johannesburg, which certainly indicate a revolution in this respect. They show how very clearly is appreciated the tremendous amount of wealth lying under their feet. From a report of a missionary society we see that a mission station has been found to be on a great gold-field; and as the society has no power to hold the land for such a purpose, it will be necessary to sell it to capitalists. They cannot work it themselves. The Government will, of course, insist upon its rights. The whole question is a difficult one.

The great question in relation to gold was touched upon by the Bishop of Manchester in his recent address on "Victoria." He pointed out that in Victoria all the placer-gold had been got. He said that as one looked over the country where the gold-finding had been carried on, and saw those heaps of upturned earth and rubbish, it seemed as though numbers of gigantic moles had been at work all over the land. The fields had been sifted by English and had been again sifted by Chinese. Now it was necessary to go down as far as 4,000 feet, and when gold has to be obtained in that way, the getting of it ceases to be a matter of adventure but becomes an industry. It was, in

fact, a settled living for a very considerable and settled population. Such was the case in Austro-Hungary, and in various parts of the Continent where gold was got regularly though not in large amounts. It would not pay to put a large body of men on to the ground, but it pays well enough to have a certain body of men continually on those gold-mines. They are not as valuable as they were, owing to the introduction of Australian and Californian gold. Notwithstanding that all the placer-gold seems to have been got there, no doubt there are other localities to be found where those denuded portions of gold have been carried down from the mountain tops and deposited in the low lands. All over India, in China, all through the golden Chersonesus, all through the lands of the East, in New Guinea, almost everywhere we come to, there are great deposits of gold, and the conclusion in relation to these diagrams concerning gold is that there is no country which has not more or less of the precious metal, though in many countries it is so difficult to get that it will not pay to get it.

When we produce the diagram we propose to have it done somewhat differently from its appearance when exhibited. We propose to try and arrange that the mark of gold in any country shall bear in some way a proportion to the average production of that country. We also propose to add a series of tables showing how much gold has been got. The diagram will represent the matter to the eye whilst the tables will assist the memory.

A discussion followed.

Announcements were made of future meetings, and votes of thanks to the reader of the paper and the Chairman closed the meeting.

SIXTY-FIFTH MEETING

Of the Society, at the Memorial Hall, Albert Square, on Wednesday, April 4th, 1888, at 7-30 p.m.; Mr. J. C. NEEDHAM in the chair.

Councillor WILLIAM SHERRATT addressed the members on "Water Supply to Large Towns." (See p. 58.)

The address was illustrated with a number of large and beautiful diagrams, and elicited much interest.

The SECRETARY mentioned that Professor Watson, in a lecture to the Hatters' Association, stated that through the hardness of the London water 100 tons a month more soap had to be used there than would need to be used in Manchester. In Liverpool wells were sunk to a certain stratum in the rock with satisfactory results. The Liverpool Corporation thought that by going deeper they would secure more water, and, against the advice of the contractor, went deeper, when they struck a fault, and so let in the sea-water, which was brackish, and therefore unsuitable. Since that they had been forced to go to Vyrnwy, which would, when completed, be very magnificent works.

Mr. B. I. BELISHA, in moving a vote of thanks to Mr. Sherratt for his lecture, asked if it was possible to get rid of the mud which had been spoken of as being so abundant in one of the reservoirs. He remembered that some twenty years ago a large trade was done in the rich kind of mud which came from the Nile through its inundations. He would also like to know if it would not be better if a balance-sheet or statement of some kind were published at stated intervals, showing exactly the condition of the water supplies with a view to stimulating economy in the use of the water.

Mr. GREY, in seconding the vote, said that no subject could have been more appropriate in view of the continuance of the present extremely dry season. Speaking of France, from which country he had just returned, whatever might be the

excellence or otherwise of the water supply in Paris, in the north-east portion of France the water was not only of great volume but was of splendid drinking and culinary qualities.

Councillor SHERRATT, in replying to the vote of thanks, said he wished the mud in the reservoirs had a commercial value, but it was a fact that it would cost as much to remove that mud as to make a new reservoir. That was owing to the cost of cartage. If it were put on the banks it would get into the water again. To effectually get rid of it, it would be necessary to take it right away. That mud was peat mud, and it would be hard to say for what purpose it could be found of any value. As to making periodical statements of the condition of supplies, he thought that such a course had decided advantages, but possibly the committee could give good reasons why this should not be done. In regard to filtration, it would be impossible to have a better system of filtration than they practised. There were 19 million gallons per day of pure spring water sent down for the use of Manchester. The Manchester Waterworks Committee were not allowed to make any profit; they had to charge cost. There was a sinking fund, and this fund had risen to a considerable extent, and this increase was unavoidable. As to the London water, it came off a watershed of 2,340 acres, through manurial land. On the banks of certain tributaries of the London supply there were towns, and out of 121 million gallons per day supplied to London, there had been found, from tests made, that 7 millions gallons were pure; the proportion sometimes pure was 53 millions, and the proportion which was polluted with sewage was 61 million gallons.

In conclusion, Mr. Sherratt spoke of a visit he had paid to the Waterworks, in company with three Japanese gentlemen, one of them Mr. Seki, the Editor of the *Times* of Yokahama. He was told by them that the pipes in use by the Japanese were trees hollowed out and fitted into each other. Of course they decayed in course of time, and this caused the water to become foul. The pipes had to be constantly renewed. Some of the Manchester ratepayers thought that the prosecution of the Thirlmere scheme would not pay, but for his own (Mr. Sherratt's) part, he thought that there would be a splendid profit to the citizens of Manchester in course of time, but in any case it has become a necessity to consider the future needs of the city.

SIXTY-SIXTH MEETING

Of the Society, held in the Library, Wednesday, April 11th, 1888, at 7-30 p.m.; Mr. J. C. FIELDEN in the chair.

The minutes of meetings held March 21st (64) and April 4th (65) were read and approved.

The election of the following members was announced:—

ORDINARY: Mr. Hilton Greaves, J.P., Mr. Robt. Thurston Greaves, Councillor
H. C. Pingstone.

The following presentations were also announced:—

Mr. Robt. Neill, £5.

Books, &c.

Annual Report of the Secretary of War for the year 1886. Vol. 4. Through General Greely, Washington, U.S.A.

Names and Places. Studies in Geographical and Topographical Nomenclature, by Professor J. D. Whitney. The Author, Cambridge, U.S.A.

Bulletin of the American Geographical Society. 1882, Nos. 1 to 5. 1883.

Nos. 1 to 6. 1884, Nos. 1 to 4. 1885, Nos. 1 and 2. 1887, Two

Supplements. The Society.

Books, &c.

- Maps and woodcuts to Rollin's History. 1730-40. Maps by D'Anville.
 The Embassy of the Netherlands East India Company to China. Full of curious and interesting plates. A fragment.
 A General Description of China, with cuts complete, in the same volume.
 Northern Countries—Arctic Regions, &c. pp. 757 to 804 of Banks's Geography. 1793.
 History of Voyages and Discoveries made in the North. Translated from the German of John Reinhold Forster, I.M.D. Maps. London, 1798.
 Narrative of the Ashantee War. Major Rickett's map and views. London, 1881.
 European Colonies. By John Howison. London, 1834. (Africa and part of India.)
 Captain Cook's Voyages Round the World. Views. Manchester, Russell and Allen, 1811.
 The Republic of Mexico in 1876. A. G. Cubas. Translated by G. E. Henderson. Mexico, 1876. Coloured figures of the people, &c.
 The Food Supplies of Western Europe. Joseph Fisher, London, 1866.
 Correspondence relative to Natural and Civil History, Geography. Vol. 1, for 1755 to 1756. Benjamin Martin, London, 1759.
 The New Universal Geographical Grammar. Salmon. Improved by J. Tytler. Maps. London, 1783.
 A New Collection of Voyages, &c. Vol. 1. (Brazil, Darien, N. America.) London, 1767.
 The Eastern and Western States of America. 3 vols. Plates. J. S. Buckingham, London, 1843.
 Mariner's Account of the Tonga Islands. By John Martin, M.D. Map. Vol. 2. London, 1818.
 The Commercial Power of Great Britain. Baron Dupin. 2 vols. London, 1825.
 America and the Americans. By a Citizen of the World. London, 1833.
 The Travellers' Guide to Madeira and the West Indies. Plates. Haddington, 1815.
 Memoires Géographiques, &c. 4th vol. America. Paris, 1767.
 Journal d'un Voyage dans L'Amerique. P. de Charlevoix, S.J. 6th vol. Paris, 1744.
 Voyages de M. du Mont en France, en Italie, en Allemagne, a Malta, et en Turquie. Vols. 2 and 3. La Haye, 1599.
 The Commerce of India, being a view of the Routes between Europe and the East. B. A. Irving, M.A. London, 1858.
 The World Displayed (Pocock's Travels in Egypt). Vol. 12. London, Newberry, 1760.
 Remarks on Local Scenery and Manners in Scotland during the years 1799 and 1800. By John Stoddart, LL.B. Vol. 1. Map and Plate. London, 1801.
 England and Wales. Described by Wm. Tolderof. Vol. 1. London, 1762. (Curious epitaphs.)
 A Month in London. J. Taylor. Plates. London, 1832.
 All the foregoing from maps and woodcuts to Rollin's History. Presented by Mr. Chas. Roeder, Fallowfield.

Books, &c.

Physical Geography of the Sea. M. F. Maury, LL.D., U.S.N. London, 1859.
Purchased.

Through the British Empire. Baron Hubner. 2 vols. Map. London, 1886.
Purchased.

The SECRETARY then read a paper on "Antarctic Research: its History and its Scientific Value," which has been revised by Admiral Sir Erasmus Ommanney, C.B., F.R.S., F.R.G.S.

ANTARCTIC RESEARCH.

THE question of discovery and scientific research in the region of the South Pole, is once more beginning to attract the attention of the learned societies in this kingdom, and is viewed with great interest by the Australian colonies.

Doubtless, if the land masses of the Southern Hemisphere had lain in any way relatively to the southern lands, as the northern land masses do, there would have been more continuous attempts to solve the problems centring round the South Pole.

But whilst in the north it is practically impossible to navigate from one side of the world to the other, and large masses of land lie within the Arctic Circle, in the south the case is just the contrary. There probably is around the Southern Pole more or less of large masses of land, but from about latitude 75° there is a clear water space to the latitude of Cape Horn, about 55° , and the southern shores of Australia and New Zealand. There is, therefore, not the same reason to urge discovery as that found by the search for a new and short way to the Indies by either a N.W. or a N.E. passage. The scientific reasons, therefore, are the ones urging a reopening of a campaign of discovery in these latitudes of ice and snow.

In a report of the Antarctic Committee of the Royal Society for 1887, the following, amongst others, are results which are set forth to be obtained by an expedition or expeditions of this kind: (1) Hydrographical observations, especially with regard to the distribution of open sea. (2) Meteorological observations, especially with regard to the barometric pressure and the direction of the winds: to which may be added observations on the *Aurora Australis*. (3) Magnetic observations, more particularly with a view to determine the changes which have taken place in the magnetic elements since the expedition of Sir J. Ross, in 1839-43. (4) Observations on the temperature of the ocean, and on ocean currents. (5) Soundings and dredgings, and observations on the nature of the sea bottom. (6) Collections and observations on the marine fauna and flora. (7) Should land be anywhere discovered, geological and biological observations thereon would be of exceedingly great value.

These seven points are of great general scientific interest, and to the Australian and New Zealand colonists have a direct bearing upon their knowledge of the climatic condition of that great cluster of islands, and of the probable commercial value of the products of the great sea enshrined within the Antarctic Circle.

The history of the search for a great southern continent is not a very long one, although it is interesting to notice the variety of the nationalities of the searchers. The writer in the *Times* of October 5th, 1887, says: "Although various attempts were made in the 17th century to penetrate southwards, the first to cross the Antarctic Circle was Captain Cook. This he did on January 17th, 1773, when in about $39^{\circ} 30'$ E. longitude he reached as far south as $67^{\circ} 15'$. Next year he sailed along the whole southern aspect of the Pacific, and as far south as $71^{\circ} 10'$, but met with nothing there in the shape of a southern continent."

Most of the work of exploring the south polar region has, however, been accomplished during the present century.

Early in this century the American whale fishers discovered the South Orkneys and Palmer's Land, which lie just on the Antarctic Circle to the south of Cape Horn.

In 1819-21 the great Russian navigator, Bellingshausen, considerably extended our scanty knowledge of this ice-covered region. Not far from the meridian of Greenwich, he penetrated southwards to $69^{\circ} 25'$, when the immense masses of ice compelled him to return. Ninety-two degrees further west he got as far south as $69^{\circ} 33'$, and was still met by ice-bound seas. On the same day, however, January 22nd, 1821, in $90^{\circ} 46'$ W. longitude, and $68^{\circ} 27'$ S. latitude, he discovered an island 4,200 feet high, which he named after Peter the Great; and a week later, almost directly south from Cape Horn, in $68^{\circ} 43'$ S. latitude, he saw land of great height, which seemed to him to be a cape belonging to a great continent, and which he named Alexander Land. The land was completely locked in ice, and in the sea itself there was no sign of life.

In 1822-3, Captain Weddell, in two tiny vessels, succeeded in bringing home a great mass of information on the meteorology, the ocean-currents, and the magnetism of these regions, and was able to penetrate further south than any former explorer, reaching $74^{\circ} 15'$ (about 1,000 miles from the pole) in W. longitude $33^{\circ} 20'$. Here he found the sea free from ice, and expressed the belief that it would be an easy matter to approach much nearer the pole.

In 1831 Captain Biscoe found Enderby Land, just on the Polar Circle, in 50° E.; and next year, Adelaide Land, evidently a continuation westward of Palmer's Land, already known, and Graham's Land, subsequently discovered, south from the southern point of America. Next year, to the east of Enderby Land, Kemp discovered the patch to which his name is attached.

In 1838-9 Balleny cruised about in the neighbourhood of the Antarctic Circle to the south of New Zealand and Australia, discovering a few patches on the circle, one of which, in $118^{\circ} 30'$ is known as Sabrina Land. About the same time a French expedition, under 'Dumont D'Urville, and the famous American expedition under Wilkes, were doing battle with the ice in the same quarter.

In the beginning of 1838 D'Urville gave the name of Louis Phillippe Land to a north-east extension of Palmer's Land, with heights rising to between 2,000 feet and 3,000 feet. Two years later, to the south of Australia, in the region explored by Balleny, D'Urville added two further patches to those already known, which he named Adelie Land and Clarie Land. At the end of March, 1839, Wilkes, with one of his four vessels, got as far south as 70° to 100° west, not far from Cook's furthest. In January of next year, starting from Sydney southwards, Wilkes approached Adelie Land, and sailing eastwards, as far as 98° east, found a coast girt by a wall of ice 150 feet to 200 feet high, behind which were mountains rising to a height of 3,000 feet.

Wilkes travelled over a stretch of 1,500 miles, and established the probability of almost continuous land all along the circle, increasing the likelihood of the existence of a great mass of land in those regions. Moreover, the observations of Wilkes and his officers were of the greatest value to science. It was mainly to fill up the absolute blanks in our knowledge of the terrestrial magnetism of the south polar regions that the British Government sent out a well-equipped expedition under Captain James Ross, the discoverer of the magnetic pole of the north. The expedition, which included in its scientific staff Dr. (now Sir) Joseph Hooker, sailed in the two famous and unfortunate ships the Erebus and Terror, and started from Hobart Town in the November of 1840.

South of New Zealand Ross came upon land in $70^{\circ} 15'$, which he followed for nearly eight degrees further. South Victoria Land was found to have an active

volcano (Mount Erebus), 12,400 feet high, and an extinct volcano, a perfect pyramid of snow (Mount Terror) rising even higher. Other great mountains cover this land of perpetual snow and ice, and far beyond the wall of ice, 200 feet high, which barred all further advance, mountain peaks were descried, all covered with ice.

In the beginning of 1842, east from Victoria Land ($161^{\circ} 27' \text{ W.}$) Ross reached his highest south latitude ($78^{\circ} 9' 30''$), further advance being stopped by a wall of ice; but unmistakable signs of land were discovered. On the opposite side of the circle, in the beginning of 1843, amid the greatest difficulties and dangers, the two plucky ships penetrated as far south as $70^{\circ} 30'$ in $14^{\circ} 50' \text{ W.}$ longitude. The gains to all departments of science made by this expedition were enormous; and it may be regarded as one of the glories of the century.

The Challenger just got beyond the circle, in 83° E. , in February, 1874, and found an open navigable sea. The contributions to a knowledge of ice forms and antarctic biology are of high importance. The expedition did not seek new lands.

A Committee of the British Association was formed to consider this subject, and the names of the original British Association Antarctic Committee were: Sir Joseph D. Hooker, Sir George Nares, Mr. John Murray (of the Challenger), General J. F. Walker, Admiral Sir Leopold McClintock, Dr. Carpenter (the late), Mr. Clements R. Markham, and Sir Erasmus Ommanney.

The subject was taken up two years ago by the various learned societies in Australia with enthusiasm. A scheme was drawn up by the Antarctic Committee of Australia, which has been submitted to the Governments of the Colonies. In short, the scheme proposed was that the Government should invite tenders from the ship-owners willing to perform the services required. The tenderers were required to provide two fortified ships, each not less than 175 tons register, and 60 horse-power nominal. The points to be attended to in the expedition were, the promotion of the whaling industry, the attainment of as high a latitude as possible, incentives being held out as an encouragement. Meteorological, oceanographic, terrestrial, magnetic, geologic, and natural history observations were to be made.

The project has been supported by the British Association, the Royal Geographical Society, the Royal Scottish Geographical Society, the Royal Society of Victoria, the Australian Geographical Society, and the Royal Societies of Tasmania, New South Wales, South Australia, and Queensland, the New Zealand Institute, the Auckland and Otago Institutes, the Canterbury Philosophical Institute, and the Linnæan Society of New South Wales.

The Agent-General for Victoria, Sir Graham Berry, has, in accordance with instructions from the Government of Victoria (in this matter virtually representing the whole of the Australian Colonies), asked the Home Government for the contribution of a sum of £5,000 towards the costs of an expedition, the Colonies voting a like amount. At present the Home Government holds back, thinking the sum named not sufficient to provide for an efficient expedition, and the amount to be subscribed will probably have to be made much larger, before the British Government will accede.

That the expedition will be made, one can hardly think doubtful, but when it is made, that it should be on an ample basis to secure a successful issue is very important. An extract from a note from Admiral Ommanney will put the case fairly as the matter now stands:—

“Since our meeting (British Association Meeting, 1887), at Manchester we have had the satisfaction to know that all the colonies in Australasia, New Zealand, and Tasmania have taken common action in the matter, and are clamorous for the exploration of the unknown within the south polar regions. The Parliament of Victoria have voted a sum for the object, provided this country will contri-

bute a similar sum. Our Colonial Departments have referred the matter to the Royal Society for their opinion. An influential committee was appointed to report on the advisability of making this grant. I have a copy of the report drawn up by the committee, which I enclose, but I do not know what action the Colonial Office have taken on receipt of the report. I think they must recommend the grant being made. After all, the sum asked for is too small to do anything more than make a preliminary examination of the drift ice bordering on the Antarctic Circle. Or probably the Australians have some intention of subsidising steam whale ships to look after a fishing station for whales, and obtaining information on any other productions of commercial value.

"A good paper on "Antarctic Prospects and the Necessity for Research," given in your great city, would carry great influence. Professor Boyd-Dawkins would speak well for the expedition in the vast interests of science. A few thousand pounds from your wealthy citizens, and other great commercial cities, would provide for a proper expedition. The Royal Geographical Society has passed resolutions recommending the Government to furnish this grant in aid. Our great interest now lies in the decision which our Government arrives at on the appeal from Victoria."

NOTE.—Papers referred to in this communication : *The Times*, Oct. 5th and Nov. 17th, 1887. "Report of Royal Society on Antarctic Committee, 1887," signed by Mr. Foster. "Economic Antarctic Exploration," by Charles Traill, of Ulva, Stewart Island. From the Transactions of the New Zealand Institute, Vol xix., 1886. Letter from Admiral Sir Erasmus Ommanney, dated 11th December, 1887. Map No. 7, in the "Handy Reference Atlas, 1888." John Walker and Co. Map No. 5, in "Phillips' Handy Atlas, 1887."

Mr. J. C. FIELDEN then introduced for discussion the question of

STATE DIRECTED COLONISATION AND EMIGRATION.

Mr. FIELDEN said : Ladies and gentlemen,—The subject is put down in the list in two shapes. (1) Proposals for State-directed emigration, and (2) the question of emigration only. There is a very great difference between emigration and colonisation. The mere movement of a body of people from a thickly-populated country, or the voluntary movement of people to escape distress and suffering, may be looked upon as emigration. But colonisation has rather a higher object in view. It indicates that the empire which attempts to found colonies is founding them for the purpose of developing the resources of the empire, and for the mutual benefit of that portion of the empire which remains behind, by communication and trade. With regard to the position of this country, I am certainly of opinion that there is no doubt whatever but that, upon an investigation of the growth of population, and an examination of the resources of the country for sustaining such population, we come face to face with the fact that some method of keeping down the rapid growth of the population is indispensable. If I were to examine, by statistics, the growth of this country for the last eighty years I should find that the population has increased at such a rate that you may say that, practically, Great Britain doubles its population every fifty-six years. In such a county as Lancashire the growth is very much more rapid : in the manufacturing districts population doubles itself every thirty-four years. But we have to look at the problem in a very simple and short way. We know what the growth of population has been, and we know perfectly well that it is likely to be much more rapid. Why ? Because nearly all the various elements which have tended to thin population are being combatted and successfully combatted. For instance, there are better sanitary regulations in our towns ; there is an increase of medical science and of medical appliances wherewith to combat disease. Human life is pro-

longed by a better method of living. Our whole population is now, as compared with thirty to forty years ago, good for four years longer life per individual. So far as the future is concerned, therefore, you have upon that basis alone an increased life rate, whilst you have a birth rate corresponding with the previous period. That means that population will grow. But this does not take into account the fact that the voluntary causes of emigration are very much diminished. They have been very active for some twenty to thirty years. There were the gold-fields of California and of Australia, the attractions of the great land of America, a land very thinly populated. In the United States there were enormous opportunities for the absorption of people. There were opportunities for emigration of a voluntary character which are not now available. And all this makes towards an increase of population more rapidly than was the case in the past. Looking at all the circumstances surrounding the question, and taking the population in 1881 as, in round numbers, thirty-five millions, it is quite clear that the census of 1931 will indicate a population of seventy millions for this country. Thus the country will have doubled itself in fifty years instead of in fifty-six years. Besides the great objection, that of the incapacity of the country to sustain easily and comfortably such a dense population, and the question, too, of the ability of the land to provide food for the people, there is the fact, which is perfectly well established, that the death rate increases precisely in proportion to the aggregation of human beings within a given space. If you search through the whole of the population returns of this country you will find that where the people are sparse you have the greatest longevity. If you, on the other hand, take the vital statistics of town-life, and take sections of the same town, you will find that as the people throng more densely per square mile the death rate keeps increasing in proportion. There is a certain block of ground in Liverpool where the pressure of people is more dense than in any part of the Metropolis, you will find that that block has a death rate of 46 per thousand, which is about three times the average death rate of many of our healthy towns. That fact of over-pressure leading to proportionate increase in the death rate should be a very strong inducement to us, limited as we are in space, and increasing quickly as we are in numbers, to say nothing of the food-supply, to consider the question as to how far and how rapidly this country may continue to allow its population to remain at home. You must bear in mind that death implies sickness. A death rate of a very high figure in our big towns implies a very great amount of suffering amongst the masses of humanity who are wage-earners.

We have somehow or other as a nation, whether by statesmanship or instinct, provided the British race with ample opportunities of expansion. I will for a moment allude to a little matter which occurred in our midst, a local matter. When Manchester went to Parliament to get powers to construct the Manchester Ship Canal, it was found that every Parliamentary Committee that had sat upon Railway Bills where railways were intended to be constructed across the river which runs between Liverpool and Manchester, they provided a clause which compelled the railways to provide for a ship canal that might in the future be constructed. It was a very astonishing thing to find that our legislators for fifty years had been anticipating and watching for the time which would come for this great scheme of uniting Manchester and Liverpool by a waterway, and that they had stipulated for compulsory powers being provided for the facilitating the making of a possible ship canal at some future time. That is like anticipating the future. Whether the British nation, through its legislators and public men, in roaming all over the world and securing territory which could serve as a means of developing this ever-extending Anglo-Saxon race, has been actuated by higher motives than the mere necessity of self-preservation

I am not prepared to say. But I can say this, viz., that Great Britain, somehow or other, has put her grip on a good deal of the best available land of the world for colonisation purposes, or for the development of new nations, or to be part of her own empire.

We have latterly seen a terrible rush and scramble for territory. Germany, France, Italy, and other countries, have been busy trying to pick up a little, looking ahead to the future growth of their populations as they become too thick upon the ground. Our colonies, and dependencies, and possessions, are five in number. They occupy altogether a little over eight and a half million square miles. They constitute practically one-eighth of the absolute land of the world. You may regard half of the land of the world as habitable for people who can live in anything like temperate latitudes, rather than in cold or hot latitudes. I draw your attention to the size of the empire, not for glorification, but to point out that we have these great possessions, and that in holding them we have also great responsibilities and great duties with regard to them. The question of colonisation on the part of Great Britain is not only a question of expansion for her population. We have seized these places, and practically hold them; and we have to consider how far we can hold them in a state of comparative undevelopment, and with but sparse population. We have also to consider how far other nations, who are finding themselves crowded, will be content to rest quietly whilst Great Britain allows these enormous possessions to lie almost idle and useless. This question of colonisation is not only a question of relief of pressure of population here—of transplanting people to places within our own empire. I need not tell you, perhaps, seeing that it is a matter of known fact, that the great bulk of our trade, so far as growth of trade is concerned, during the last twenty years, has been with our colonies and dependencies. The problem we have to solve is a very particular one. Years and years ago we outstripped the power—I will not say the power quite—or the actual productive capacity of our soil in regard to its power to provide food for the people. At the present time we grow, one year with another, about £150,000,000 worth of food, and we consume a little over £400,000,000, the difference between which amounts is imported. Now, it is certain that within the next ten years the imports of foodstuffs into this country will quite equal our own in value, and this will place us in a state of semi-dependence on foreign supplies. That would not be a very great difficulty, but for two things, viz., (1) Supplies from abroad have to be brought by sea, and with every other individual in the country dependant upon foreign supplies, it will be absolutely indispensable that Great Britain should be mistress of the seas—undisputed mistress—because a war which would interfere with the importation of foods would be a very serious problem indeed. It may be said, too, that such a state of things would be a very serious problem to face even now. (2) The people who send us this food supply do not send it for nothing. We have to buy, and we can only buy by manufacturing something which they are willing to buy, and can buy from us cheaper and better than they can buy elsewhere. We have to assume an increase of population growing so rapidly as ours is now—of 300,000 souls per annum. We have to assume that every year we can do a trade which for labour and skill expended will give us £3,000,000 of a constant increase per annum whereby to feed those people alone, not taking into account their requirements for clothing and other necessities. These, I say, are great problems.

We have to consider (1) the health of the population in relation to density of population; (2) the power of the nation to trade and thereby provide for the growth of population; (3) how far that power can be retained and our supremacy maintained. All these have to be considered alongside a constantly-increasing dependence upon

foreign imports of food. When we take our little Australia—little as you talk of its population, large as you speak of the land—you have there only three and a quarter millions of people. And yet we do more foreign trade with Australia, or to put it in other words, they buy more of our manufactures than the whole of Africa, including Egypt, the Cape Colonies, and also the whole of the trade we do with China. Practically, although there are 400,000,000 people in China and 300,000,000 or thereabouts in Africa, those 700,000,000 do not buy from us in manufactured goods per annum as much as the three and a quarter millions of people in Australia. Every three and a quarter millions of people you can plant in Australia will bring us a business return to this country, so far as taking off our manufactures is concerned, equal to one-fourth of the entire production of the cotton trade. I do not mean that they will take this amount in cotton, but that they will take a quantity of exports equal to one-fourth of the out-turn of our cotton industry in value. I am one of those men who would like to see this country grow, but not grow so rapidly. I think we should thin our population in this sense: instead of allowing an annual increment of 300,000 we should take means to reduce that increase to 100,000 by beginning to distribute two-thirds of such annual increase between Canada, Australia, New Zealand, the Cape, and other places where our people can thrive and develop, and where they can live and live well, independent, healthy and strong. We have a perfectly safe and open course in this country for the next five generations for a rate of growth such as 100,000 would give us without trenching too thickly upon the soil, and this both in regard to capacity of the land to feed them and due attention to the health of the people.

I have sketched what may be considered the main grounds of the question, and have shown the dire necessity of facing a great problem. I am not at all disposed to combat every argument in the discussion which may follow in respect to the amount of land which is so far uncultivated in our own country. I think that a very considerable use can be made of our own soil in feeding the people, far greater use than is being now made of it. To this end there is room for agitation in view of this development. Legislation could no doubt secure us better land laws and better opportunities for developing the soil at present neglected. This could go on side by side with the work of emigration and systematic colonisation. Everything that can be done in both ways will need to be done if we would keep the people of this country from outstripping their resources.

The question now is, Why should we invoke the aid of the State? It is quite true that every one of these vast colonies and dependencies have been fought for by British money and won by British blood. The great mass of the people of this country have in their forefathers contributed to the conquests in the past. Those colonies belong to them: they are their heritage. They are not the heritage of the rich or of the middle classes merely. What is the position relatively of the three classes to-day? The rich can buy vast estates in our colonies, and, as pressure comes here they can settle upon them in lordly dominion. The middle classes can take out their families and settle any portion they choose, and provide the ways and means by which to settle any members of their families or connections who may be disposed to take up a home in a new part of the empire. But what is the position of the working man, and of the man without work? Is it, I ask, worthy of the position of a great empire like ours that we should have distress amongst us bordering upon famine and starvation? That we should have thousands driven away year by year to foreign parts or to our own colonies, it may be, to seek a home in practically a penniless condition? Is that part of the heritage which our great masses are to have? Or are we to invoke the aid of the State, and that of many of the Governments of the colonies, so as to see if we

cannot, by a proper system of transplanting, year by year, sections of our population, reduce the pressure here, and do it with splendid chances of success to those on whose behalf such measures may be taken?

We know perfectly well that when we talk of asking for the interference of the State for any purpose of this kind we are met by one or two objections. I am glad to say that the first objection is dying out, and that indicates that there is a better tone of feeling and a better frame of mind coming over the people of the country who belong to the capitalist class. Had we started twenty years ago with this question of emigration with the assistance of the State we should have had the opposition of the capitalist class as a body, based upon the theory of supply and demand. I think any opposition of that kind will be extremely small now to the proposals of the Colonisation Society of London, of which Manchester is a branch. I think it is quite clear that in all the great centres of population, whether you take our inland towns or the suburbs of any of the great towns, you will find that there is a surplus of labour in all directions. From this it would appear that we shall not be met by many cries of that old fear as to how far we shall by our endeavours influence the general wage rate.

There is no definite, clear scheme, in the sense of a practical scheme, yet drafted out and put into definite proposals to the Government, but there are certain heads of a scheme which have been discussed, and the plan is somewhat like this: Western Australia has an area of one million square miles of land. At present she has only got a population of about 35,000 whites and a very few of the aborigines. You may safely say that at the present time West Australia could, if laid out in blocks of land, give to each man, woman, and child thirty 30 square miles. The Government of West Australia are prepared to deal liberally with any great scheme whereby populations can be drafted out there and planted on her soil. Like Canada, she is prepared to give considerable grants of land, such as 100 to 150 acres, to any family of emigrants who choose to settle down there. There is already the commencement of a series of railways. And it must not be thought that West Australia is the only colonial government which is prepared to make concessions of land. The plan of colonisation which we would suggest to our Government is based upon the idea of their giving assistance to emigrants during the first year or two after their arrival, and during which they may have to lay out the land granted them, and get the necessary stock and implements for putting the land in order. The Government would give this assistance in the shape of money, to enable the emigrant to do all these necessary things, and would take over, as security for the repayment of such loan, the freehold of the farm on which such settlement is made. Such repayment might be by easy instalments. Knowing, as we do, the great power of our Government—it can borrow money at less than 3 per cent—we can see how easily the State could assist in this great scheme of planting numbers of people in a new land, and placing them there free to begin with, save for the repayment of the stated rate of interest and the repayment of the loan. If 5 per cent were paid back as interest, it is certain that the difference between 5 per cent and 3 per cent would meet any bad debts which might be incurred. There is certainly ample room for carrying out such a scheme. You have in this scheme the very germs of a principle whereby the working classes and operative classes of various kinds can get an opportunity of sharing in the great heritage of the nation, the colonies. It would also help to show the truth of the principle that by extending our population there we shall be increasing our trade, inasmuch as we shall be increasing the number of our purchasers for the products which we have to sell in order that we may buy the excess of foodstuffs which we require. You will be doing what a man does when he plants a forest: he plants that, not for to-day or to-morrow, but for practically twenty or thirty years ahead, and the

great reward is reaped in a twenty years' accumulation. Looking at the matter in all its bearings, I say there is no higher degree of statesmanship to be shown than in taking care that those portions of our empire which are fit for population, and require population in order to develop their resources, shall receive such population. I think I have shown that we have a great opportunity, inasmuch as we have well within our own empire the grandest chance of development that any empire has had since the world began. There is no belief in the mind of any thinking man that the world of itself, as a whole, is over-populated. We are not suffering from over-population, as a whole, on this planet. Our suffering comes from the fact that the population is pressing on too limited a space in certain parts of the earth, whilst other parts, which are teeming with possible riches, are lying undeveloped because there is no population to develop them.

The SECRETARY said that the remarks of the chairman left a good deal to be explained. A good many people did not at all accept the canon that emigration was a good thing. A man should be able to live where he was born. As to increase of population, Russia increased in Europe by a million a year. There was an underlying Malthusianism in the idea that population should be limited to the capacity of a nation to feed the people. A decrease of population was inseparable from a scarcity of work, and consequent scarcity of means, and *vice versa*. The people of to-day are in an infinitely superior condition to any they had previously experienced. Certainly, in relation to increased struggle for existence, thrift should be inculcated, as also should be the notion that being poor was no disgrace, whereas being in debt was a disgrace. It was very doubtful whether the country had overgrown its present means of providing subsistence. Certainly the most had never been made of the available means of subsistence. There had been, undeniably, too much extravagance, and there would have to be less. It was questionable if anything of an artificial character could be done to meet the end in view. In reference to the death rate of Manchester, very little progress seemed to have been made in lowering it, and it seemed as though not much could be made. On one side of the river there was a population whose death rate was from 6 to 17 and averaging about 12, whilst on the other side the rate was 35 per 1,000. He believed that, as Lord Derby said, the land of this country, if duly cultivated, would produce twice what it did, and perhaps it might, he thought, produce enough for three or four times as many as we now had to feed. If the question of over-population could be taken up, free from any spirit of party, something might be done in the way of migration rather than emigration. There was overcrowding in the towns, but the rural districts could, if due provision could be made, support a vastly enlarged population. There was a want of strong-backed men to defend the weak. Why should the able-bodied men of the country be sent away, and only those who were physically the worst be left behind? A scheme of colonisation had been carried on by a little society, which had transplanted a considerable number of people, but they took with them all their belongings. They paid back within five per cent all the cost of transit. At present we were losing about a quarter of a million people every year, and no doubt much of this voluntary colonisation would continue to go on. Did the promoters of the State-aided scheme propose to take out only picked people, or the whole circle of their belongings? If he were speaking from the point of view of a colonist, native-born, he would not care to take in the whole lot of such indiscriminately. It was the strong-backed people who were wanted as a foundation for a race which would have to keep these new lands in the future. But if the weak were not taken along with the strong, an injustice would be done to the mother country. Certainly human life had been prolonged in

England—prolonged by four or five years on the average; but it might be asked what was the life which had been so altered? Was it the active, vigorous living, valuable life, which made everything in the world worth having? It was certainly not that kind of life, seeing that such men, nowadays, die more quickly about fifty years of age than used to be the case. The life which had been prolonged was the life in our gaols and workhouses, such proving the healthiest places in the world. In the event of a war breaking out between this and some other country, how should we be fixed here if all our strong able-bodied men had gone elsewhere? Then, would all who emigrated be necessarily fit for becoming the pioneers of civilisation, in the way of engaging in agricultural pursuits? Are not the colonies themselves developing or about to develop manufacturing industries? The Canadians were intending to open up a line of communication with Japan and China, and to supply their markets with stuffs which had hitherto been supplied from England. Finally, what kind of guarantee had we that the colonies would respect the commercial interests of this nation, when once they had got from us the bone and sinew of our race? There seemed to be absolutely no certainty in this respect, beyond the abstract considerations of equity and justice.

MR. RICHARD COBDEN PHILLIPS said there were some facts which underlay the question of the growth of population, and the consequent necessity of colonisation, which did not seem to be taken into account as much as they deserved. There was too much reliance upon bases of previous increase in estimating the probable increase of population in the future. It had been said that with the present rate of increase the population would double itself in some fifty years. Now, there was no knowing beforehand that such a rate of increase would be uniform, and so finally verify the estimates. Good harvests, occurring at intervals in the past, had influenced the rate of marriages very much in excess of the average. There was no certainty that what was to be considered a normal rate would always remain unchanged. With increased facilities for existence an increased rate of increase of population might be expected, until such facilities were used up, and *vice versâ*. A certain amount of pressure was inseparable from human life. All nations were progressive more or less, and this fact of progression had an effect on the rate of increase of population. Taking the rates of increase of organisms and comparing them in classes, it would be found that, with some few exceptions, the simplest and least developed have the greatest—that is the quickest—rate of increase. Take microbes. One hundred of these put into some beef tea would become, in a few days, billions. Higher in the scale of life it would be found that small animals have a very rapid increase. The fecundity of rabbits was well known. The reverse was the case with the larger animals, such as oxen, horses, and elephants. The progress of man from savagery to developed civilisation was chiefly in the development of brain, but that was a far heavier strain than mere muscular exertion on the bodily organisation. And, indeed, it was to this pressure of population on the means of subsistence that we are indebted for our progress. With only few requirements we might be still like the indigenes of the tropics. It might, therefore, be expected that the natural rate of increase would be lower and lower. There was, in fact, absolutely no guarantee that the rate of progress of numbers would be fifty years hence equal to what it was to-day. Based on the population of Rome, during the Republican or Imperial periods, Europe ought to have billions instead of millions of inhabitants. A community or commonwealth was an organism, and subject to the same laws as all organised life. It grew in size, developed its different parts which became more unlike each other, and after a time it became incapable of further development, but had to give birth to new organisms of the same character, and so propagate itself. It was only in the lower organisms

that the progeny remained attached to the parent. Our colonies were the progeny of our own social organism, and there would doubtless be a tendency for them to become more and more detached from us, though it was to be hoped not entirely. For the growth of any organism it was almost a matter of necessity that it should be composed of slightly unlike elements. That was the case the whole animal world over. Those colonies had got on the best which had not been entirely of pure blood, but had a slight intermixture of nearly-allied but dissimilar blood. That would point the moral that it was advisable that a certain mixture of Anglo-Saxon, Teutonic, Latin, and other white races should be encouraged to take up their habitat in the colonies as well as our surplus population, and there found new colonies, which by that intermixture would take upon themselves attributes that neither the one nor the other part of the community possessed, following their own laws of life, but stronger and more independent and more suited to their own peculiar position. The matters he had mentioned were the result of biological considerations, which, in any discussion as to population, over-pressure, and colonisation, should be taken into account.

Mr. B. I. BELISHA thought that the subject was one which should not be decided upon too hastily. There were interests both in the mother country and in the colonies which had to be regarded. It was, however, pleasant to entertain the idea of strengthening the link between them. He thought that a conference should be held on the subject, as it was certain that something would have to be done in view of the prevailing distress. For his own part, he did not think that increase of population in our colonies would necessarily mean increase of trade for the home country, seeing that the colonists would be apt to develop a manufacturing industry for themselves. In this respect, he spoke as one born in the colonies. The intention of the colonists to look after themselves in respect to commercial interest was very strongly evidenced by their tariffs. Speaking of the gain of four or five years to the average human life in this country, even if this gain were enjoyed, as had been said, by those in prisons and workhouses, it nevertheless meant a decrease of sickness and disease, and in this respect was a matter for congratulation.

A vote of thanks was then passed to Mr. Fielden for his remarks.

The SECRETARY said that the question of a conference in October would be submitted to the Council for consideration, Mr. Fielden having promised to arrange with the promoters of the scheme for State-aided emigration or colonisation for the matter being thoroughly discussed by them, if such a conference could be arranged by the Manchester Geographical Society.

Mr. FIELDEN, in replying, said that the promoters of the scheme for State-aided emigration had in view to relieve suffering in this country, which had arisen from over-population, and to better the condition of the people generally. Mr. Phillips' remarks had been more particularly a scientific description of development, carrying out the theory of life into the development of organised societies. Nothing in the proposals of those connected with the movement in favour of State-aided emigration in any degree condemned free or voluntary emigration wheresoever it might be. They would freely admit any section of humanity there. It would be no part of their programme, and there would be no attempt made to say to any intending colonists that the colonies belonged to Great Britain, and were for her own people only. One thing which distinguished Great Britain as the greatest coloniser, perhaps, the world had ever known, was the fact that the colonies, whatever they might have cost in blood and treasure, were open to all on equally free lines. The moment any system of exclusive dealing was inaugurated, whether as regarded tariffs or nationality of people entering, from that time would date the downfall of such colony. As to growth of

population in the future, to quote Hosea Biglow, it was never safe to prophecy until you knew, but there seemed to be more philosophy in the saying that coming events cast their shadows before. The physical events of futurity were fully well known—eclipses, for instance, were located and timed to a second. Statistics in themselves were never misleading, though men might, of course, use them for the purpose of misleading. Taking one hundred thousand men to-day, it could be told to the hour almost how long they would live, and almost to a fraction of one-hundredth part of one per cent what would be the various causes which would bring about their deaths, especially their deaths by violence. These things were known so clearly. In relation to suicides, he might tell them it was generally supposed that November was the foggy, gloomy month which caused more suicides to take place than any other month of the year. Statistics, however, proved beyond a doubt, both in this and other countries, that suicides increased from January to June, and decreased from June to December; from which it would be seen that the end of June and the beginning of July were the periods for suicides to be most frequent. Statistics as to the future of life pointed to an increasing rather than a diminishing growth of population. The good harvest at times in the past had no doubt had a beneficial influence upon the people, but they were not now to be reckoned upon as specially conducive to that end, for the world had been linked together by steam. There were millions of acres in Canada, in the Great West of America, in India, all over the world, in fact, ready to make up the deficiency if a harvest proved deficient here. Corn could be poured in abundance upon all the points where short supplies were either anticipated or experienced. Then what did all the prevailing talk about separation from the mother country mean? The separation involved in the distance from Inverness to London fifty years ago was as great as is that in the distance between England and Canada now. Steam and the telegraph-wire had annihilated time and space, as it were. The idea of isolation from the mother country under such circumstances was not worth a moment's consideration.

No man would justify a policy of regarding it as natural that if the means of subsistence were outstripped by the population, pressure must necessarily come, and by sheer force of itself diminish the rate of increase. If so, it would be a terrible lookout for some classes of society in this country if ever a time came when population had to be diminished by starvation and pressure of that kind. It was the duty of any State to make use, on behalf of its people, of all the opportunities and facilities for developing all possible resources before permitting its people to be starved off the face of the earth.

It would be a great advantage if men would interchange the products of the earth perfectly free from taxation. Most of our colonies had gone in for a policy of protection, but the fact remained in spite of this that we had developed practically twice as much trade with our colonies as with the rest of the world during the last twenty years. Although the old example of the United States had been pernicious to new colonies, it was beginning to tell upon their populations, and a wiser course was beginning to be pursued.

There were people who rejoiced at the increase in size of our towns. It was, however, satisfactory to know that there were certain things coming to the front which would tend to diminish the populations of towns. There were, for instance, tramway systems, railway season tickets, and other means whereby people could readily and cheaply get away from the scenes of their daily employment. And yet, when the thinly as well as the thickly-populated places were taken into account, it would be found that this country was by far the most thickly-populated country—taking any countries of any size—in the world. It might be, as he had said, sometime

before the population came actually to the point of bare existence, but that point it was not desirable to reach, as it was necessary to live a long way from that condition to live in anything like decent comfort. What had to be done was to make the best use of the world, and not merely of the little quiet corner in which we lived, or of any small section of a colony, but to develop the resources of the nation and to interchange commodities freely between all nations.

The whole pith and idea of the scheme he was advocating might be summed up in this, viz., that instead of having the people driven away from home by starvation, and arriving at their new land in a state of destitution—possibly they could raise the amount of passage-money—they should have assistance just at the most critical time, which would be just between their landing and getting fairly started to work. Those huge colonies should be made available for the poor of this country, so that they might participate in the advantages of developing them. Who were the people who were leaving for the colonies, as things at present arranged themselves? New colonies did not want clerks and mechanics. Agriculture was the great calling to be followed at the outset of a colony's development. And the very people who were coming out of work in England were the very people whom these new colonies wanted.

The very same process that caused such a terrible commotion in the north of England at the commencement of this century, viz., the transplantation of the textile industries, principally wool and cotton, from the cottage homes to the factories, was at work in our agricultural industry. Steam was being applied to every process, whether to reaping fields or to making butter and cheese. Consequently a constantly decreasing amount of labour was required in agriculture, and great numbers of labourers were being forced into our towns, there to seek a living, notwithstanding that the towns were already crowded with people anxious to work, and suffering from their own natural increment of people fit for the work which others from outside came in to seek.

The promoters of the scheme did not propose to force the people out. They said that pressure allowed to exhaust itself was like neglecting to put up lightning rods in view of thunderstorms, and allowing the bolt to strike where it might. They wished the resources of the empire to be utilised to the utmost for the benefit of the people, to put surplus population in touch with lands requiring population, and to do so in a manner and with such assistance, on self-supporting lines, as would secure to us and to our colonies thriving citizens in various parts of the great British empire.

A hearty vote of thanks to the chairman closed the proceedings.

SIXTY-SEVENTH MEETING

Of the Society, held at the Art Museum, Ancoats, by the permission of the Committee, on Saturday afternoon, April 21st, 1888. Mr. J. HAINSWORTH in the chair.

A short account of the Art Museum, prepared by Mr. J. E. PHYTHIAN, one of the Hon. Secretaries, was given to the members.

THE MANCHESTER ART MUSEUM.

The Art Museum is one of the youngest of the Manchester institutions, only two years having elapsed since the Committee found in the Ancoats Hall a home for the works of art they had been collecting during several years. The object of the scheme was to furnish a contribution to that art culture, the need of which, as a civilising agency, and for commercial reasons, we are just beginning to realise in this country. Not the least of the difficulties in forming a collection of art objects for this purpose was the necessity of combining instruction with general effectiveness, and of con-

sidering the very different stages of attainment reached by those who were likely to visit the Museum. To meet these difficulties the aid of both written and printed descriptions attached to the pictures, oral explanation and a handbook to the Museum, have been called in, and it is hoped that by these means much valuable knowledge will be communicated as well as much true pleasure. The average number of visitors is about 2,000 per week—lectures, readings, and musical entertainments being additional attractions, giving variety, interest, and brightness, as well as further instruction, and being invaluable therefore in maintaining the popularity of the Museum. Classes for drawing and wood-carving are also held, and the results so far are very satisfactory.

In addition to the contents of the Museum itself, the Committee have a collection of pictures to lend to elementary and other schools in Manchester and Salford. This work, which they regard as an essential part of their scheme, has not yet, owing to want of funds, been developed as they could wish, but in the instances in which they have been able to lend pictures, valuable testimony has been given as to the usefulness of the work.

The handbook, compiled by Mr. T. C. Horsfall, and to be obtained for the small sum of one penny, gives such a full account of the contents of the Museum that there is no need here to enlarge upon the subject. We will in a few words give a general idea of what it contains.

The Ancoats Hall is situate at the corner of Great Ancoats Street and Every Street, and both the Bradford and Openshaw tramcars, starting from Piccadilly, pass within two or three minutes' walk of the door. The present Hall was built in the early years of this century, on the site of the original Elizabethan building. In front is a garden, which, through the kind offices of the Open Spaces Committee, has been redeemed from utter barrenness into sufficient wealth of tree and shrub to form a most acceptable oasis in the surrounding wilderness of blackened brick.

On entering, the visitor finds himself facing a wide staircase, surmounted with a plaster cast of the Apollo Belvedere. To right and left are corridors, the one containing sea pictures and illustrations to Shakspeare, the other pictures of life in different lands, and war pictures. In a large room to the right is an important series of paintings, chromo-lithographs, engravings, and photographs, tracing the development of pictorial art, from the earliest bone-scratching through the Egyptians, Greeks, and Byzantines to the great schools of Italy and down to modern times. In another room on this floor are pictures of interesting places in the neighbourhood of Manchester, while another contains a selection from Turner's "*Liber Studiorum*," with Stopford Brooke's notes appended. Passing to the upstairs rooms, the visitor will find pictures of birds, animals, trees, and flowers; pictures illustrating Egyptian and Greek architecture and sculpture, a collection of interesting portraits, and a number of pictures illustrating the scenery and architecture of many lands. In one of the rooms also are a number of pictures likely to interest children, and in another, cases containing the tools and implements used in the different processes of art reproduction, with explanations of the processes, and examples of the results attained.

Casts of statuary, examples of pottery, metal-work, textile fabrics, and other arts also find a place in the collection.

No more need be said to prove that here is an institution capable of doing much good, not only to the Ancoats people, but to those whom leisure and education have enabled to acquire a love for art and history. Here they can complete their own knowledge, and the pleasure derivable therefrom, both by studying the contents of the Museum, and either by short lectures or simple conversation imparting information to the men, women, and children of the neighbourhood who visit the Museum. The traveller, with pictures of Venice, Athens, or the Pyramids before him, can not only

enjoy his past wanderings over again, but can assure himself of an interested audience of from three or four to fifty of those to whom stories of foreign travel are still excursions into wonderland. The short record here given suggests many ways in which gifts at present put to no social use can be so employed.

The work is capable of great extension. The committee would like to see similar museums in other parts of the city, so that the means of acquiring a knowledge of art may be within a few minutes' walk of everyone. They feel that their work has only just begun, and the assistance of all who can appreciate its value is urgently requested.

Mr. J. S. THORNTON, B.A., of Victoria Park School, addressed the members on "Four Weeks in a Slöjd Training Class at Birmingham." He sketched in detail the history of the famous Slöjd seminary at Nääs, near Gothenburg; described the principles regulating the choice of the models or objects made by Slöjd pupils; showed that the aim of Slöjd was educational rather than technical—its object being to train eye and hand to develop the physical powers generally, and above all to foster habits of exactness, order, industry, and perseverance. He finally exhibited the first twenty-six models of the Nääs series, which his colleagues Mr. A. Brownie, M.A., and Mr. F. C. Herzog, with himself, had executed in Miss Chapman's and Miss Nyström's Training Class at Birmingham, last Christmas. A fuller report here is unnecessary, as the subject was treated much more exhaustively on February 25th last, at the meeting of the Teachers' Guild (Secretaries: Miss Wilson, 223, Brunswick Street; Mr. J. A. Newbold, 40, Hyde Road).

The address was illustrated with a set of Slöjd models, sent on loan to the Art Museum from Birmingham.

The address was listened to with much interest, and a lively discussion ensued on the use and applicability of the system to primary schools in England.

Mr. WARDLE proposed and Mr. SCOTSON seconded a resolution "That our hearty thanks be given to the Committee of the Museum for its use, and to Mr. Thornton for his very interesting address."

Mr. THORNTON responded.

A very cordial vote of thanks to the Chairman closed the meeting, after which the members took the opportunity of inspecting the Museum, and were particularly struck with the work of the wood-carving and drawing classes on exhibition.

SIXTY-EIGHTH MEETING

Of the Society, held at Liverpool, April 28th, 1888. This meeting was held to examine the many treasures of the Museum, Library, and Art Gallery, in William Brown Street, and the art collection, &c., at the Royal Institution, Colquitt Street, Liverpool.

About 70 members availed themselves of the opportunity.

On arrival at the Museum, the members were received by the Rev. H. H. Higgins, M.A., and by Mr. Moore, curator of the Museum, Mr. Cowell, chief librarian, and by Mr. Dyll, curator of the Art Gallery.

The company was divided into two bodies, and were shown over the various departments. A hand list had been prepared, which was found useful. At the conclusion, a meeting was held in the Art Gallery, Mr. S. OGDEN in the chair.

A very hearty vote of thanks to the committee, chairman (Rev. H. H. Higgins), the librarian, and curators, was passed, for their very great kindness to the members on the occasion of this visit.

The Rev. H. H. HIGGINS, Mr. COWELL, and Mr. DYALL responded.

The company proceeded to the Royal Institution, where, after examining the art collections, curiosities, and books, and the adaptation of the building to the wants of twenty-two or twenty-three learned societies as a place of meeting—tea was served.

After tea Mr. S. OGDEN again took the chair. When several addresses were delivered by Messrs. GREGORY, MOSELEY, the Rev. J. C. SOWERBUTTS, the Rev. B. RAWLINGS, and others, on the very instructive and pleasant afternoon the members had enjoyed.

A very hearty vote of thanks was given to the Committee of the Royal Institution, and to the curator and his wife, for the bountiful provision they had made for the members' comfort.

Mr. EDWARD DOLING responded.

The party arrived at the Exchange Station at 9-15 p.m. on their return.

Another party visited Liverpool, on Saturday, May 12th, to inspect the Museum and Library, and spent a very pleasant afternoon.

The following Sketch and Bibliographical Note of the History and Work of the Liverpool Free Public Library, prepared for the Members of the Society by the Chief Librarian, will no doubt prove interesting to members:—

In the year 1850, the first Free Libraries Act was passed. In April of that year Mr. (afterwards Sir) James A. Picton moved the following resolution in the Town Council: "That a committee be appointed to inquire and report on the propriety of establishing a Free Public Library in the town of Liverpool." That report was favourable, and the committee which was then appointed by the Council has practically never ceased to exist. On account of the conditions attending the bequest of the 13th Earl of Derby, of the stuffed ornithological collection at Knowsley, a special Act of Parliament was applied for, and obtained, by the Corporation to carry them out. It was entitled, "An Act to establish a Free Library, Museum, and Gallery of Arts at Liverpool," and the object and purposes indicated by this title have from very small beginnings resulted in the present handsome and extensive pile of buildings, and the valuable collections of books, natural history specimens, antiquities, and pictures stored therein, largely the result of generous benefactions, and of the foresight and able administration of Sir James A. Picton, who has presided over the deliberations of the committee without intermission since 1852.

The first home of the Library was a building in Duke Street, formerly the Union Newsroom. Here the Library was opened on the 18th October, 1852, with some 8,000 volumes. The issues during the first year amounted to 111,723 volumes. Owing to the growing popularity of the Library, and the inconvenience of the premises in Duke Street, other more commodious premises became imperatively necessary. Mr. (afterwards Sir) William Brown endeavoured to spur the Corporation to do something towards providing a new home for the Library by an offer of £6,000 towards the cost, a sum he afterwards increased to £12,000. As the Liverpool Corporation did not move fast enough for Sir William, he decided to erect a library and museum at his own entire cost if the Corporation would provide a site. This was done, and the building, commonly known as the Brown Library, was opened with considerable ceremony in William Brown Street, in 1860. The Library continued to grow and prosper, so much so that further accommodation for readers and books became again urgently needed. The result of this was the erection by the municipality, at a cost of some £23,000, of the Picton Reading Room, with its large basement Rotunda lecture theatre. This circular room, 100ft. in diameter, was opened in 1879. Besides providing abundant storage for books, the new room has become much resorted to as a place of study and literary research—a use greatly promoted by the issue of novels, the lighter kind of periodicals, and newspapers being confined to the Brown Library.

The Picton Reading Room, called so in honour of Sir James A. Picton, forms a handsome connecting link between the no less imposing Brown Library and Museum on the one hand and the Walker Art Gallery on the other, the three buildings being a complete *tria juncta in uno* by means of the corridors which lead from one to the other.

The Library now contains 92,000 volumes. The total volumes issued last year (1887) numbered 752,542, besides magazine literature, of which no exact statistics are taken. The Library possesses many valuable works on natural history, the fine Arts—particularly architecture—and topography. It also possesses a most extensive and interesting collection of local books, illustrations, and drawings, a feature of municipal library work initiated at the foundation of the Library, and which has been carried on with zeal by the present librarian, Mr. Cowell. The proportion of folio and quarto volumes to smaller is unusually large, hence the value and importance of the Library is only indicated to a limited degree by the total number of volumes it contains.

Besides the Reference Library, the Library department includes two branch lending libraries, and five evening reading-rooms. At the present time, plans and drawings are being prepared for an extension, in number and size, of the lending branches. A particular feature of the work of this Library is the several series of free lectures which during the past twenty-two years have been given in the lecture halls of the Reference Library during each autumn and winter, and with the greatest success.

Other generous benefactors to the institution besides those mentioned have been Sir Andrew B. Walker, who erected, at his sole cost, the Art Gallery which bears his name; and the late Joseph Mayer, who presented to the city his extensive and valuable collections of MSS., antiquities, ivories, and pottery, known now as the Mayer Museum.

[The Members visiting Liverpool, to inspect the Geographical and other Treasures at the Free Public Library and Museum, and at the Royal Institution, Liverpool, on Saturday afternoon, April 28th, 1888, had a copy of the following Hand List. The Members left the Exchange Station (L. & N. W. Ry.) at 1 p.m., and were received by the Rev. H. H. Higgins, the Librarians, and Curators. Sir J. A. Picton, Kt., F.S.A., wrote a very kind note excusing himself on account of sickness. After inspecting the Library and Museum (including the fine Mayer Collection and the Walker Art Gallery), the Members proceeded to the Royal Institution, Colquitt Street, where the valuable and interesting contents of the Institution and Art Collection were shown to them. Tea was provided at the Royal Institution.]

Besides Geographical and Topographical Works, there was exhibited in the Librarian's Room of the Free Public Library a number of Books and MSS. connected with William Roscoe.

LIST OF WORKS IN THE LIVERPOOL FREE LIBRARY, &c.

The following is a List of some of the Works in the department of Geography, Voyages, and Travels, in the Liverpool Free Public Library. To increase the interest of the list, it has been deemed advisable to make it generally distinct from that prepared for the visit of the Society to the Manchester Free Library.

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| Ainsworth, W. F. The Earth delineated with Pen and Pencil. 4to. [1869.] G162. | Bacon, George W. Ordnance Atlas of the British Isles. Folio. 1883. G119. |
| Ainsworth, W. F. (Ed.). Illustrated Universal Gazetteer. Large 8vo. 1863. G1536. | Baness, J. Frederick. Index geographicus Indicus. Royal 8vo. 1881. G2775. |
| Andre, R., and A. Scobel. Karte von Afrika. 4to. Bielefeld. 1884. G244. | Bartholomew, John, F.R.G.S. Imperial Map of England and Wales. Folio. n.d. G83. |
| Andrews, John. Geographical Atlas of England. Folio. 1810. G1. | Bates, H. W. (Ed.). Illustrated Travels: a Record of Discovery, Geography, &c. 6 v. 4to. n.d. G155. |
| Anson, Lord George. A Voyage Round the World. 1740-4. 4to 1776. G135. | Bauerkeller. Model Relief Map of Great Britain. Folio. n.d. G31. |
| Anville, J. B. B. d'. Antiquité géographique de l'Inde. 4to. Paris. 1775. G146. | Bauerkeller. Model Relief Map of N. America. Folio. n.d. G32. |
| Anville, J. B. B. d'. Analyse géographique de l'Italie. 4to. Paris. 1744. G145. | Beauvoir, Marquis de. Voyage Round the World. 3 v. Small 8vo. 1870-2. G1999. |
| Arrowsmith, A. A New General Atlas. 4to. 1817. G1. | Becker, M. A. Mittheilungen der kais. und königl. geographischen Gesellschaft in Wien. 8vo. 1873. G2228. |
| Atlas Geographus; or, a Compleat System of Geography. 5 v. 1711-17. G237. | |

- Beha, E. (Ed.). *Geographisches Jahrbuch*. 9 v. Svo. Gotha, 1870-87. G1984.
- Belcher, Sir Edward. *Narrative of a Voyage Round the World, 1830-42*. 2 v. Svo. 1843. G310.
- Bell, James. *A System of Geography, Popular and Scientific*. 6 v. in 12. Svo. Glasgow. 1829-40. G333.
- Bevan, Rev. W. L., M.A., and H. W. Phillott. *Medieval Geography: an Essay in Illustration of the Hereford Map of the World*. 2 v. Svo. 1873. P677.
- Blackie, C. *Etymological Geography*. Third edition. Small Svo. 1887. G2293.
- Bock, C. *Reis in Oost en Zuid-Borne*. 4to. 'SGravenhage. 1881. G225.
- Blowe, Daniel. *A Geographical, Commercial, and Agricultural View of the United States*. Svo. Liverpool. N.D. G2783.
- Bordone, Benedetto. *Isolario, nel qual si ragiona di tutte l'Isole del mondo*. Folio. Vinegia. 1534. G97.
- Bryant, A. *Map of the County Palatine of Chester*. 4to. 1831. G216.
- Bryce, James, LL.D. *The Library Gazetteer*. Svo. 1859. G1154.
- Buckingham, Thomas. *The New Universal Gazetteer*. Svo. N.D. P94.
- Burnes, Alexander. *Map of Central Asia*. Published by J. Arrowsmith. 1834. G332.
- Camden, William. *Britannia*; translated and enlarged by Richard Gough. 4 v. in 23. Folio. 1806. F312.
- [NOTE.—An interleaved copy, illustrated with engraved maps, views, portraits, &c.; also original drawings and sketches.]
- Canada. *Standard Atlas of the Dominion of*. Folio. 1878. G104.
- Cary, John. *New and Correct English Atlas*. Folio. 1787. G98.
- Cary, John. *New Universal Atlas*. Folio. 1808. G99.
- Cassas, Louis F. *Voyage pittoresque de la Syrie, de la Phénicie, de la Palestine, et de la Casse Egypte*. 3 v. in 2. Roy. folio. [Paris, 1799] G133.
- Cellarius, C. *Geographia antiqua*. Svo. 1786. G471.
- Challenger, H.M.S. *Voyage of. "Report on the Scientific Results, 1873-6*. 33 v. 4to. 1880-8. C340.
- Choiseul-Gouffier, Comte de. *Voyage pittoresque delagrece*. 2 v. in 3. Folio. Paris. 1782-1822. G85.
- Clarke, J. W. *A New Geographical Dictionary*. 2 v. 4to. 1813. G230.
- Clavier, P. *Introductio in universam geographiam*. 4to. 1711. G15.
- Coats, Capt. Thomas, R.N. *The Geography of Hudson's Bay*. Svo. 1852. G832.
- Conder, C. R., and H. H. Kitchener. *Map of Western Palestine*. Folio. 1880. G111.
- Cook, Capt. James. *Three Voyages Round the World*. 8 v. 4to. 1773-84. G136.
- Cook, Capt. James. *Atlas*. Folio. N.D. G56.
- Cook, Capt. James, and Capt. J. King. *Voyage to the Pacific Ocean*. 3 v. 4to. 1785. G16.
- Cooke, Capt. Edward. *A Voyage to the South Sea, and Round the World in 1768-11*. 2 v. Small Svo. 1712. G2266.
- Cooke, George A. *Modern and Authentic System of Universal Geography*. 2 v. 4to. 1801. G231.
- Cunningham, Alexander. *Geometric Geography of India*. Svo. 1871. G2736.
- Curtius, E., and J. A. Kaupert. *Atlas von Athen*. Folio. Berlin, 1878. G106.
- Dampier, Capt. William. *Voyages*. 4 v. Svo. 1699-1709. G1789.
- Dapper, Oliver. *Description de l'Afrique*. Folio. Amsterdam, 1686. G88.
- Dictionnaire géographique universel. 10 v. in 20. Svo. Paris, 1823. P241.
- Dixon, Capt. George. *A Voyage Round the World*. 4to. 1789. G102.
- Drake, Sir Francis. *The World Encompassed*. Svo. 1854. G1746.
- Dumont, d'Urville. *Voyage de découvertes de la corvette l'Astrolabe*. 1826-29. 18 v. Svo. Paris, 1830. G1776.
- Dumont, d'Urville. *Atlas*. 2 v. Folio. G26.
- Du Petit Thouars, Abel. *Voyage autour du monde sur la frégate La Venus*. Folio. Paris, 1841. G42.
- Edinburgh Gazetteer, The; or, *Geographical Dictionary*. 6 v. Svo. Edin., 1822. P57.
- Essais de Géographie. Small Svo. Neuchâtel, 1784. G1254.
- Fearon and Ewe. *A Description of the Sea Coast of England and Wales*. Folio. Liverpool, 1737. G113.
- Flandin, Eugène, and Pascal Coste. *Voyage en Perse*. 6 v. Folio. Paris. N.D. G52.
- Franklin, Sir John. *First and Second Expeditions to the Polar Sea*. 2 v. 4to. 1823-8. G22.
- Fréycinet, Louis de. *Voyage autour du monde*. 5 v. 4to. Paris, 1824-29. G163.
- Fréycinet, Louis de. *Atlas*. 3 v. Folio. 1824-29. G80.
- Fullarton's *Gazetteer of the World*. 7 v. Royal Svo. 1850-6. G1366.
- Fullarton's *Topographical, Statistical, and Historical Gazetteer of Scotland*. 2 v. Large Svo. Edinburgh, 1847. P52.
- Fullarton's *Parliamentary Gazetteer of England and Wales*. 3 v. Large Svo. 1845. P59.
- Funnell, W. *Voyage Round the World*. Svo. 1797. G2785.
- Gail, Jean F. *Geographi Græci minores*. 3 v. Svo. Paris, 1826-31. G1040.
- Gaimard, Paul (Ed.). *Voyage en Island et au Groenland exécuté sur la corvette "La Recherche"*. 1835-6. 16 v. in 14. Svo. G2102, and 3 v. in 1. Folio. 1838-52. G82.
- Garnier, François. (Ed.) *Voyage d'exploration en Indo-Chine: cartes et plans*. 2 v. Folio. Paris, 1873. G86.
- Geographical Magazine*. Edited by Clements R. Markham. 5 v. Imp. Svo. 1874-78. G2368.
- Gerstaecker, F. *Narrative of a Journey Round the World*. 3 v. Sm. Svo. 1853. G429.
- Guthrie, William. *A New System of Modern Geography*. 4to. 1792. G57.
- Hakluyt, Richard. *Principal Navigations, Voyages, Traittiques, and Discoveries of the English Nation*. Folio. 1599. G11.
- Hakluyt, Richard. *Supplement of Curious, Rare, and Early Voyages*. 4to. 1812. G77.
- Hall's *Voyages* (Constable's Miscellany). 3 v. 16mo. 1826. G759.
- Hall, Basil. *Fragments of Voyages and Travels*. 3 v. 16mo. 1831. G303.
- Hamilton, Walter. *East India Gazetteer*. Svo. 1815. P55.
- Harris, John, D.D., F.R.S. *Navigantium atque itinerantium bibliotheca; or, a Complete Collection of Voyages and Travels*. 2 v. Folio. 1744-48. G39.
- Haskel, D., &c. *Descriptive and Statistical Gazetteer of the United States*. La. Svo. New York, 1850. P62.
- Hawkesworth, John. *An Account of the Voyages for making Discoveries in the Southern Hemisphere*. 4 v. Svo. 1785. G3505.
- Heron, Robert. *A New and Complete System of Universal Geography*. 2 v. in 4. Svo. Edin., 1796. G336.
- Heylyn, P. *Cosmographie: containing Chorographie and Historie of the Whole World*. Folio. 1669. G4.
- Historical Account of the Circumnavigation of the Globe*. 2nd edition. Svo. Edin., 1837. G768.
- Holman, James, R.N., F.R.S. *A Voyage Round the World*. 4 v. 4to. 1834. G304.

- Horwood's Plan of London. Folio. 1791. G24.
Hübner, Alexander F. von. Ein Spaziergang um die Welt. 4to. Leipzig, 1882. G214.
Hudson, John. D.D. *Geographiæ veteris scriptores Graeci minores*. 4v. in 2. Svo. Oxoniae, 1698-1712. G1158.
Hughes, William. *Philip's Handy Classical Atlas*. Svo. 1872. G2103.
Hughes, William. *A Treasury of Geography*. New edition. Sm. Svo. 1870. G1974.
Johnston, Alexander K. *Map of Africa*. Edin., 1879. G208.
Johnston, Alexander K. *Atlas of Classical Geography*. 4to. Edin., 1866. G137.
Johnston, Alexander K. *General Dictionary of Geography*. Royal Svo. 1877. P582.
Johnston, T. B. *Map of South Africa*. Cape Town, 1880. G2721.
Jomard, E. F. *Les monuments de la géographie*. Folio. Paris, N.D. G73.
Kiepert, Dr. Heinrich. *Atlas antiquus; Ten Maps of the Ancient World*. Folio. 1861. G46.
Kiepert, Dr. Heinrich. *Neuer Atlas von Hellas*. Folio. Berlin, 1872. G79.
King, Capt. P. P., and Capt. Fitzroy. *Voyage of H.M.S. Adventure and Beagle, 1826-36*. 3 v. in 4. Svo. 1839. G622. And 5 v. 4to. 1840-43. C87.
Kinnear, J. M. *Geographical Memoir of the Persian Empire*. 4to. 1813. G24.
Knight, Charles. (Ed.) *English Cyclopædia: Geography*. 4 v. 4to. 1854. P34.
Knight, Charles. *Geography of the British Empire*. 2 v. Imp. Svo. 1853. G426.
Laborde, A. de. *Voyage pittoresque et historique de l'Espagne*. 4 v. Folio. Paris. 1806-20. G118.

LANCASHIRE MAPS.

- Map of Lancashire*, A.D. 1086. J. and C. Walker. 1831.
Map of Lancashire, 1598. Copied from a drawing in Harleian MSS. by Matthew Gregson. 1821. The Countie Pallatine of Lancaster, 1610. John Speed.
Map of Lancashire. T. Badeslade. 1742.
Map of Lancashire. G. Bickham, jun. 1754.
Chorographical Survey of the County forty miles round Liverpool. T. Troughton. 1807.
Greenwood, C. *Map of the County Palatine of Lancaster, 1818*. Folio 1818. G120.
Hennet, G. A. *Map of the County of Lancaster*. 1829. G4007.
Richmond's (George) *Map around Liverpool from the Ordnance Survey*. 4to. 1881. G227.
Collection of Lancashire Maps, Plans, &c., originally formed by the late Thomas Binns of Liverpool. It was purchased by the Liverpool Free Library Committee in 1854, and has been greatly augmented since that date. 29 v. Folio. F69.
[NOTE.—The above volumes contain a very important collection of maps and plans—many very rare—of Lancashire, particularly the hundreds of West Derby and Salford. The collection embraces also a large number of drawings, prints, views, &c., of considerable topographical and antiquarian interest.]
La Perouse, J. F. G. de. *A Voyage round the World, 1785-88*. 2 v. 4to. 1798. G93 and folio G63.
Lauters, Paul. *Voyage aux bords de la Meuse*. Folio. Bruxelles, 1839. D760.
Laval, Lottin de. *Voyage dans la péninsule Arabique, du Sinaï, et de l'Égypte moyenne*. Text: 4to. G183 and plates. Folio. Paris. 1873. G89.
Leake, William M. *On some Disputed Questions of Ancient Geography*. Svo. 1857. G1043.
Le Vasseur, V. *Atlas National Illustré de la France*. Folio. Paris, 1847. G5.

LIVERPOOL MAPS.

- Historical Map of Lyrpole, from a very curious Plan, A.D. 1539*. Copied by J. Butler. L'pool, 1861.
Plan of Liverpool. Circa 1600.
Plan of Liverpool as it appeared about the year 1650. Published by T. Kaye, Liverpool, 1829.
Map of Liverpool. Engraved by J. Peel. 1720.
Map of all the Streets, Lanes, and Alleys within the Town of Liverpool. By J. Chadwick. 1725.
Part of Liverpool. Planned March, 1753, by John Eyes.
Plan of Liverpool. R. Williams. 1766.
Plan of the Town of Liverpool. John Eyes. 1768.
Plan of Liverpool. G. Perry. 1769. Folio. G124.
Plan of the Town of Liverpool. Thomas Conder. Published by J. Gore, Liverpool. 1790.
Plan of Liverpool. Published by J. Stockdale. 1795.
Plan of the Town of Liverpool. O'Connor. 1797.
Plan of Liverpool. J. Lowes. Circa 1800.
Map of Liverpool. Circa 1802.
Plan of the Town and Township of Liverpool. R. Horwood. 1803.
Map of Liverpool. J. Roper. 1807.
Map of the Environs of Liverpool. James Sherriff. 1816.
Philip's New Map of Liverpool and its Environs. 4to. 1881. G221.
Philip's Map of the Environs of Liverpool. N.D. G2759.
Long, Henry L. *A Survey of the Early Geography of Western Europe*. Svo. 1859. G1191.
Mackay, Alexander, LL.D., F.R.G.S. *Manual of Modern Geography*. Small Svo. Edinburgh, 1878. G2597.
Mandeville, Sir John. *Voyages and Travels*. 4to. 1722. G252.
Maps published by the Society for the Diffusion of Useful Knowledge. 2 v. Folio. 1844. G81.
Maps. Engraved by S. Hall. Published by Longman and Co. 1834. G339.
Marchand, Etienne. *A Voyage Around the World, 1790-92*. 2 v. Svo. 1801. G3530.
Marsigli, L. F. Conte de. *Danubius Pannonico-Mysicus; observationibus geographicis, astronomicis, &c.* 6 v. Folio. La Haye. 1726. G95.
Maury, M. F. *Manual of Geography*. 4to. 1872. G232.
Mills and Fletcher. *Plan of Birkenhead, Cloughton-cum-Grange, &c.* 1858. G2760.
Milner, Rev. Thomas. *The Gallery of Geography*. Royal Svo. N.D. G1593.
Moll, Herman. *A Set of Fifty New and Correct Maps of the Counties of England and Wales*. 4to. 1739. G229.
Morrison's *New and Complete System of Universal Geography*. 2 v. in 4. Svo. Edinburgh. 1796. G536.
Moryson, Fynes. *An Itinerary; containing his Ten Yeeres Travel*. Folio. 1617. G59.
Muir, Francis, LL.D. *A System of Universal Geography*. Svo. Edinburgh, 1870. G1973.
Münster, Sebast. *Cosmographie universalis* lib. vi. Folio. Basil, 1590. G38.
Narborough, Sir John, and others. *An Account of several late Voyages and Discoveries to the South and North*. Small Svo. 1694. G2137.
New General Atlas; with an Introduction to Geography. Maps engraved by John Senex. Folio. 1721. G122.
Niebuhr, B. G. *Lectures on Ancient Ethnography and Geography* (In his collected lectures. V. 7-8.) Svo. 1852-3. E109.
Nodier, Ch., et autres. *Voyages pittoresques et romantiques dans l'ancienne France*. 2 v. Folio. Paris. 1825. G49.

- Norden, F. L., F.R.S. Travels in Egypt and Nubia. 2 v. Folio. 1757. G140.
- O'Brien, M., and others. A Manual of Geographical Science. 2 v. Svo. 1852-3. G1173.
- Old County Maps. Miscellaneous Collection. Folio. v.d. G127.
- Osborne, T. (Comp.). A Collection of Voyages and Travels. (Harleian Voyages.) 2 v. Folio. 1745. G126
- Onseley, Sir William. Oriental Geography of Elia Hankal. 4to. 1800. G31.
- Parry, Sir W. E. Voyage for the Discovery of a North-west Passage. 4to. 1821. G4.
- Parry, Sir W. E. Second Voyage. 4to. 1824. G5.
- Petermann, A. Mittheilungen aus Justus Perthes' geographischer Anstalt. 4to. 1861-88. G206.
- Phillips' Imperial Library Atlas. Edited by Wm. Hughes, F.R.G.S. Folio. 1882. G76.
- Pinto, Ferdinand. Voyages and Travels in China and the East. 4to. 1662. G33.
- Polo, Marco, Travels of; edited by H. Murray. Small Svo. Edinburgh, 1844. G771.
- Portlock, Captain Nathaniel. A Voyage Round the World, 1785-88. 4to. 1789. G151.
- Price, C. A New and Correct Map of the World. Folio. S.D. G54.
- Ptolomeus, Claudius. Geographice enarrationis libri octo. Folio. Lugduni, 1535. G71.
- Réclus, Elisée. Nouvelle géographie universelle. 13 v. Imperial Svo. 1875-88. G2376.
- Recueil de voyages et de documents pour servir à l'histoire de la géographie depuis le xiii^e jusqu'à la fin du xvie siècle. 6 v. 1882-5. G251.
- Fragment du planisphère, par Albert Cantino. Folio. 1883. G128.
- Rennel, James. Memoir of a Map of Hindostan. 4to. 1792. G170.
- Richtshofen, Ferdinand F. von. Atlas von China. 2 parts. Folio. Berlin, 1885. G127.
- Ritter, Carl. Comparative Geography; translated by W. L. Gage. Small Svo. Edinburgh, 1865. G1618.
- Roque, John. Plan of London and Westminster. Folio. S.D. G25.
- Royal Geographical Society. A Selection of Papers on Arctic Geography and Ethnology. Svo. 1875. G2320.
- Ruehus, C. (Ed.). Les monuments de la géographie des bibliothèques de Belgique. Carte de l'Europe, 1480-85. Folio. Bruxelles, 1887. G138.
- Rugendas, Maurice. Voyage pittoresque dans le Brésil. Folio. Paris. 1835. G30.
- Saint-Non, Abbe de. Voyage pittoresque à Naples et en Sicile. 4 v. Svo. G2804 and 3 v. Folio. Paris. 1829. G115.
- Saint-Vincent, Bory de, et autres. Expedition scientifique de Morée. 5 v. (v. 2 Géographie). 4to. Paris, 1836. G119.
- Salmon, Thomas. Geographical and Historical Grammar. Svo. 1757. G342.
- Savouarolo, Raphael. (Alphonso Lasor a Varea.) Universus terrarum orbis scriptorum calamo delineatus. 2 v. Folio. Patavia, 1713. P69.
- Seale, Bernard. An Hibernian Atlas; or, General Description of Ireland. 4to. 1776. G40.
- Scherzer, K. Circumnavigation of the Globe, by the Austrian frigate Novara, 1857-9. 2 v. Svo. 1861-2. G1340.
- Scott, Joseph. The New and Universal Gazetteer. 4 v. Svo. Philadelphia, 1799-1800. P61.
- Semper, Dr. C. Reisen in Archipel der Philippinen. 4to. Leipzig, 1868-88. G177.
- Simpson, Sir George. Narrative of a Journey Round the World, 1841-2. 2 v. Svo. 1847. G309.
- Sparriman, A. Voyage to the Cape of Good Hope, towards the Antarctic Polar Circle, and Round the World. 2 v. in 1. 4to. 1785. G234.
- Spruner, Karl von. Atlas antiquus. Folio. Gotha, 1855. G67.
- Spruner, Karl von. Historisch-Geographischer Hand-Atlas zur Geschichte der Staaten Europas. Folio. Gotha, 1854-5. G21.
- Spruner, Karl von. Historisch-Geographischer Hand-Atlas zur Geschichte Asiens, Africae, Americae, und Australiens. Folio. Gotha, 1855. G68.
- Stanford's London Atlas of Universal Geography. Folio. 1887. G137.
- Stanford's Map of Malay Peninsula. 1879. G2814.
- Stanford's Parliamentary County Atlas and Handbook of England and Wales. Svo. 1885. G3524.
- Stanford's Railway Map of England and Wales. Folio. 1886. G121.
- Strabo. De situ orbis. Folio. Venetiis, 1516. G23.
- Strabo. Rerum geographicarum libri xvii, Græce et Latine; ed. Thomas Falconer. 2 v. Folio. Oxonii, 1807. G55.
- Strabo. Strabonis Geographica; recensuit commentario critico instruxit G. Kramer. 3 v. Svo. Berlin, 1844-52. G1611.
- Strahlenberg, P. J. von. An Historico-Geographical Description of the North and Eastern Parts of Europe and Asia. 4to. 1738. G179.
- Tavernier, John B., The Six Voyages of. Folio. 1678. G67.
- Texier, Charles. Description de l'Asie Mineure. 3 v. Folio. Paris. 1839-49. D849.
- Thesaurus geographicus; a New Body of Geography. Folio. 1695. G112.
- Thornton, Edward. Gazetteer of the Territories under the Government of the East India Company. Svo. 1857. P98.
- Travels, Miscellaneous. Svo. Liverpool. v.d. G3502.
- Vancouver, George. Voyage of Discovery to North Pacific Ocean and Round the World. 1790-5. 3 v. 4to. 1798. G250.
- Voyages Round the World from the Death of Capt. Cook to the present time. Svo. Edinburgh, 1843. G775.
- Waldemar, Prince of Prussia. Zur Erinnerung an die Reise nach Indien. 1844-6. 2 v. Folio. Berlin. 1853. G90.
- Walker, J. and C. British Atlas. Folio. 1858. G39.
- Watton, T. Miscellaneous Tablet Sheets on Geography, &c. Folio. S.D. G12.
- Well, William H. A Geographical Dictionary; or, Gazetteer of the Australian Colonies. Svo. Sydney, 1848. P53.
- Weller, Edward, F.R.G.S. Philip's Atlas of the Counties of England. 4to. 1885. G153.
- Wheeler, J. Talboys. The Geography of Herodotus developed, explained, and illustrated from modern researches and discoveries. Svo. 1854. G10.
- Wilson, J. M. Imperial Gazetteer of England and Wales. 2 v. Royal Svo. 1872. G2122.
- Wilson, J. M. Imperial Gazetteer of Scotland. 2 v. Royal Svo. S.D. G2849.
- Wullenstorf-Urbair, B. von. Reise der österreichischen Fregatte Novara um die Erde, 1857-59. 3 v. Svo. Wien, 1861-2. G2448.
- And 15 v. 4to. 1862-5. C181.
- Audubon, John J. The Birds of America. 4 v. elephant folio. 1827-38. C69.
- [NOTE.—The original edition; coloured plates. In this work the birds are depicted life-size.]
- Archer, John W. Vestiges of Old London. Folio. 1851. P45.
- Aspinall, James—("An Old Stager"). Liverpool a few years since. Svo formed into 4to. 1852. P656.
- [NOTE.—Each Svo leaf is inlaid in 4to; and the book is illustrated throughout with original pencil portraits by Hargreaves.]
- Azeglio, Roberto d'. La reale galleria di Torino. 4 v. Folio. Torino, 1836-46. D812.

- Becker, C., und J. von Hefner. Kunstwerke und Geräthschaften. 3 v. 4to. Frankfurt, 1852-63. D487.
- Benoist, F. La Normandie illustrée. 2 v. Folio. Nantes, 1852. G34.
- Bernatz, J. M. Scenes in Ethiopia. Folio. 1851. G91.
- Blanc, C. L'œuvre de Rembrandt. 2 v. Folio. Paris, 1873. D772.
- Botta, P. E. Monument de Ninive. 5 v. Folio. Paris, 1849-50. F179.
- Bryan, Michael. Dictionary of Painters and Engravers. 2 v. 4to formed into 4 v. folio. 1816. P50.
- [NOTE.—Unique. Each of the 4to pages is inlaid in folio; and there are intercalated a large number of fine portraits engraved after the great artists by Bartolozzi, Honbraken, Hollar, and others.]
- Bull, H. G. (Ed.) The Herefordshire Pomona. 2 v. Folio. 1876-85. C175.
- Chambers, R. (Ed.) The Book of Days. Royal 8vo. 1863. F800.
- [NOTE.—Unique. The 2 v. have been divided into 12; and are enriched by a large collection of views, portraits, and other illustrations.]
- Coste, Pascal. Monuments modernes de la Perse. Folio. Paris, 1867. F287.
- Couché, J. Galerie du Palais Royal. 3 v. Folio. Paris, 1786-1808. D217.
- Daloz, Paul. (Ed.) Trésor artistique de la France. 2 v. Folio. Paris, n.d. D913.
- Daniell, Thomas. Oriental scenery and antiquities. 3 v. Folio. 1795-1808. D401.
- David d'Angers, P. J., L'œuvre de. 2 v. Folio. Paris, 1873. D793.
- Dresser, Henry E. The Birds of Europe. 8 v. 4to. 1871-81. C368.
- Drummond, J. Old Edinburgh. Folio. Edinburgh, 1879. F355.
- Dulwich Gallery, The. Edited by R. Cockburn. Folio. n.d. D816.
- Dumas, P. G. (Ed.) Illustrated biographies of modern Artists. Folio. 1882. D1003.
- Durer, Albert; L'œuvres de; reproduit par Amand-Durand. Folio. Paris, n.d. D877.
- Edwards, E. Old Inns. Folio. 1873. F298.
- Egypt. Description de l'Égypte; ou recueil des observations et des qui ont été faites en Égypte pendant l'expédition de l'armée française. 21 v. in 23. Folio. Paris, 1809-22. F124.
- [NOTE.—A very magnificent work, promoted by Napoleon I., and printed at the Imprimerie Impériale. It is of the first edition; and is one of the few vellum-paper copies printed for presentation to certain members of the court. This copy contains the coloured plates, and is sumptuously and uniquely bound. It formerly belonged to King Louis Philippe of France, whose monogram, surmounted by a crown, is impressed upon the side of each volume.]
- Enfield, William. History of Liverpool. Folio. Liverpool, 1774. F258.
- [NOTE.—Contains MS. additions by Matthew Gregson.]
- Florence Gallery (The Old). La. folio. 1724. D830.
- [NOTE.—Comprises the original series of large copper-plate engravings by Lorenzini. Bound in full French morocco, very chastely and beautifully tooled on sides.]
- Forster, Edward. The British Gallery of Engravings. Folio. 1807. D860.
- Galerie de Bubens, dite du Luxembourg. Folio. Paris, 1809. D861.
- Garrucci, Raffaele. Storia della arte cristiana nei prima otto secoli della Chiesa. 6 v. Folio. Prato, 1873-81. D1016.
- Gavard, Ch. Galeries historiques Versailles. 13 v. Folio. Paris, 1838-42. D478.
- Gemälde-Saal zu München und Schleifshelm. 3 v. Folio. München, 1817. D256.
- Gilray, James, Works. From the Original Plates. Folio. n.d. D65.
- Gould, John. The Birds of Asia. 7 v. Folio. 1850-83. C8.
- Gould, John. Birds of Great Britain. 5 v. Folio. 1873. C78.
- Gould, John. A Monograph of the Trochilidae, or Family of Humming Birds. 6 v. Folio. 1861-87. C9.
- [NOTE.—The library possesses a complete series of Gould's works, excepting the "Century of Birds."]
- Gregson, Matthew. Portfolio of Fragments relative to the Duchy of Lancaster; edited by John Harland. Folio. 1869. F30.
- Guérin, Victor. La terre sainte. 2e ed. 4to. Paris, 1884. G240.
- Gutbier, Adolf (Ed.). Rafael-Werk. 3 v. 4to. Dresden [1881-3]. D891.
- Hähnel, Ernst J. Sculpturen. Folio. Dresden, 1882. D961.
- Hall, S. C. (Ed.) Selected Pictures from the Galleries and Private Collections of Great Britain. 4 v. Folio. n.d. D1081.
- Herdman, William G. Modern Liverpool. Folio. Liverpool, 1864. F168.
- Herdman, William G. Pictorial Relics of Ancient Liverpool. 2 v. Folio. 1878. F348.
- Herdman, William G., Studies from the Folio of. Folio. Manchester. n.d. D71.
- Hoffbauer, F. Paris à travers les âges. 2 v. Folio. Paris, 1875-82. F349.
- Hogarth, William. Works. Atlas folio. [1795.] D1064.
- [NOTE.—Fine impressions of the original plates, mostly engraved by Hogarth himself. Published by Boydell.]
- Houghton Gallery. Published by John Boydell. Folio. 1788. D380.
- Jones, Owen, and Jules Goury. Views on the Nile. Folio. 1843. D403.
- Kingsborough, Lord. Antiquities of Mexico. 9 v. Folio. 1831-48. F75.
- Laborde, Comte Alexandre de. Les Monuments de la France. 2 v. Folio. Paris, 1816-36. F157.
- Laurent, Henri. Le musée royal. 2 v. Folio. Paris, 1816-18. D677.
- Layard, H. Austen. The Monuments of Nineveh. Folio. 1849. F42.
- Lepsius, C. R. Denkmaller ans Egypten und Ethiopien. 1 v. Imp. 4to. 12 v. Elephant folio. 1849-56. F238.
- [NOTE.—The most important work on the subject. Unequalled in completeness of design and in the perfect style of its execution.]
- Letarouilly, Paul. Edifices de Rome Moderne. 3 v. 4to. and 3 v. Folio. Liege, 1849-53. D184.
- Letarouilly, Paul. Le Vatican et la basilique de Saint Pierre de Rome. 3 v. Folio. Paris, 1882. D1073.
- Lewis, John F. Illustrations of Constantinople. Folio. n.d. D343.
- Liverpool Elections. Roscoe and others, 1806-7; Poll Books, Squibs, and Songs, &c. 3 v. 1806-7. 1235.
- Malherbe, Adolf. Monographie des Picidées. 4 v. Folio. Mentz, 1861. C33.
- Mantz, Paul. Hans Holbein. Folio. Paris, 1879. D936.
- Martius, C. F. P. de. Historia naturalis palmarum. 3 v. Folio. Monachii, 1823-50. C112.
- Martius, C. F. P. de. Nova genera et species Plantarum quas in itinere per Braziliam. 3 v. 4to. Monachii, 1824-29. C181.
- Martius, C. F. P. de. Icones selectae Plantarum Cryptogrammicarum, quas in itinere per Braziliam. 4to. Monachii, 1827. C178.
- Mazois, F. Les ruines de Pompéi. 4 v. Folio. Paris, 1824-38. F204.
- Melbourne. 12 Photographic Views. Folio. 1880. D1062.

- Murphy, James E. The Arabian antiquities of Spain. Folio. 1813. F58.
- Musée Française gravure par Du hesne Ainé. 4 v. Folio. Paris, s.d. D253.
- Nash, Joseph. Views of Windsor Castle. Folio. 1848. F63.
- National Gallery, Engravings from the Pictures of the. Folio. 1840. D119.
- Ouseley, William G. Views in South America. Folio. s.d. D688.
- Palastre, Léon. La renaissance en France. 2 v. Folio. Paris, 1879-81. F356.
- Paris dans sa splendeur. 3 v. Folio. Nantes, 1861. D439.
- Paris, Edmond. La musée de marina du Louvre. Folio. Paris, 1883. F412.
- Parker. Historical Photographs. Rome. 7 v. Oblong 4to. s.d. F402.
- Perrit, Louis. Catacombes de Rome. 6 v. Folio. Paris, 1851-5. F200.
- Piranesi, G. B., and F. Le Antichita Romane. 5 v. Folio. Roma, 1756. F31.
- [NOTE.—The library contains a complete series of the works of Piranesi.]
- Pistoletti, Erasmo. Il Vaticano. 8 v. Folio. Roma, 1829-38. D212.
- Place Victor. Nive et l'Assyrie. 3 v. Folio. Paris, 1867. F289.
- Ploos van Amstel, C. Collection d'imitations de dessins d'après les principaux maîtres hollandais et flamands. Folio. Amsterdam, 1821. D876.
- Potter, Paul. Eaux-fortes; reproduites par Amand-Durand. Folio. Paris, s.d. D880.
- [NOTE.—The above is an unpublished MS.]
- Prisse d'Avennes. L'art arabe. 1 v. 4to. D895, and 3 v. Folio. Paris, 1877. D974.
- Prisse d'Avennes. L'art égyptien. 1 v. 4to. D904; and 2 v. Folio. Paris, 1878-9. D979.
- Prout, S. Illustrations of the Rhine. Folio. 1853. D160.
- Pyne, J. B. The English Lake District. Folio. 1853. D761.
- Rachuet, A. Le costume historique. 6 v. Folio. Paris, 1888. D859.
- Reynolds, Sir Joshua, P.R.A., Engravings from the Works of. 2 v. Folio. 1865. D163.
- Roberts, David, R.A. Egypt and Nubia. 3 v. Folio. 1846-49. G9.
- Roberts, David, R.A. The Holy Land. 3 v. Folio. 1842-49. G8.
- Rodiaz, Camille de. (Ed.) L'art ancien à l'exposition nationale Belge. Sm. folio. Bruxelles, 1882. D1087.
- [NOTE.—Special Copy. The entire work is printed on vellum, the etchings being proofs before letters in two states, black and brown. Bound in full red morocco, with silk linings.]
- Roller, Theophile. Les catacombes de Rome. 2 v. Folio. Paris, s.d. F386.
- Roscoe, William. The Butterfly's Ball and the Grasshoppers' Feast: a facsimile reproduction of the edition of 1808. 4to. 1883. M194.
- Roscoe, William. The Dingle. 4to. s.d. M169.
- Roscoe, William. The Life of Lorenzo de Medici, called the Magnificent. 2 v. Liverpool, 1793. E290.
- [NOTE.—Presentation copy from the author to Dr. Currie, with autograph of Roscoe and Dr. Currie's bookplate.]
- Roscoe, William. Lorenzo de Medici. Original MS. of Chapter V. in Roscoe's handwriting.
- Roscoe, William. Life and Pontificate of Leo the Tenth. 4 v. 4to. Liverpool, 1805. E217.
- Roscoe, William. Monardrian Plants of the Order Scitamineæ. Imp. folio. Liverpool, 1828. C18.
- Roscoe, William. Mount Pleasant: a Descriptive Poem. 4to. Warrington, 1777. M148.
- Roscoe, William. The Nurse: a poem translated from the Italian of Luigi Tansillo. 4to. Liverpool, 1798. M166.
- Roscoe, William. Proof Impressions of Engravings designed to illustrate Mr. Roscoe's Catalogue of the MS. Library at Holkham. 4to. 1835. D911.
- Rosellini, J. Monumenti dell'Egitto e della Nubia. 9 v. 8vo, and 3 v. Folio. Pisa, 1832-44. F187.
- Rosini, Giovanni. Storia della pittura italiana esposta coi monumenti. 7 v. 8vo and 2 v. Folio. Pisa, 1839-47. D822.
- Royal Gallery of Art: Ancient and Modern Engravings. 4 v. Folio. s.d. D416.
- Schongauer, Martin. Œuvres reproduit et publié par Armand-Durand. Folio. Paris, s.d. D982.
- Sculpture Gallery, The. 4to. s.d. D257.
- Sibthorp, J. Flora Græca. 10 v. Folio. 1806-40. C120.
- Simpson, William. India, Ancient and Modern. 2 v. Folio. 1867. D794.
- Société d'aquarellistes Français. 2 v. Folio. Paris, 1883. D1024.
- Society for Photographing Relics of Old London. 3 v. Folio. 1875-86. F413.
- Spix, J. B. de. Animalia nova, sive species novæ Lacertarum. 4to. Monachii, 1825. C176.
- Spix, J. B. de. Animalia nova, sive species novæ Testudinum et Ranarum. 4to. Monachii, 1824. C175.
- Spix, J. B. de. Selecta genera et species Piscinum. 4to. Monachii, 1829. C177.
- Spix, J. B. de. Simiarum et Vespertilionum Brasiliensium. Folio. Monachii, 1823. C111.
- Spix, J. B. de. Serpentinum Brasiliensium. 4to. Monachii, 1824. C174.
- Spix, J. B. de. Testacea Flaviatilia. 4to. Monachii, 1827. C176.
- Spix, J. B. de et C. F. Ph. de Martius. Avium species novæ. 2 v. 4to. Monachii, 1824-40. C174.
- Spix, J. B. de. Delectus Animalium Articulatorum in Brasilia collectorum. 4to. Monachii, 1830. C180.
- Swarbreck, S. D. Sketches in Scotland. Folio. 1839. D89.
- Tasmania, Photographic Views of. Folio. Hobart Town. s.d. D1052.
- Troughton, T. History of Liverpool. 4to. Liverpool, 1810. F203.
- [NOTE.—Interspersed with Views of Liverpool, Portraits, &c.]
- Turner, J. M. W. Picturesque Views in England and Wales. 2 v. Folio. 1838. D756.
- [NOTE.—India proof impression, with several artists' proofs inserted.]
- Turner Gallery: a series of 60 Engravings from the Principal Works of J. M. W. Turner, with Text by R. N. Wornum. Folio. s.d. D590.
- [NOTE.—Proof on India paper before letters. Full bound in crimson morocco, and finely tooled.]
- Unger, William. Die Kaiserl. Königl. Gemälde Gallerie in Wien: text von Carl von Lützow. 3 v. Folio. Wien, 1886. D888.
- Unger, William. Etchings after Hans Hals. Folio. Leiden, 1873. D942.
- Unger, William. Œuvres. 2 v. Folio. Leyde, 1874. D934.
- Valentine, Agostino. La patriarcale basilica Vaticana. 2 v. Folio. Roma, 1844-55. D329.
- Van Dyck, Antoine. Eaux-fortes. Folio. Paris, s.d. D882.
- Vivian, George. Views from the Gardens of Rome and Albans. Folio. 1848. D613.
- Walton, Elijah. Peaks and Valleys of the Alps. Folio. 1867. D545.
- Whistler, Jas. Sixteen Etchings on the Thames. Folio. s.d. D697.
- Wilkie Gallery. A Selection of the Best Pictures of Sir David Wilkie, R.A. 4to. s.d. D126.
- Yriarte, Charles. Venice. Folio. Paris, 1878. F234.
- Yriarte, Charles. Florence. Folio. Paris, 1881. F375.

MAYER MUSEUM.

ETHNOGRAPHICAL COLLECTION.

THIS department has become more fully developed than any other in the Mayer Museum. Amongst the large number of specimens forming the above collection may be mentioned the Tinne, Lawes, and Stoward Collections of objects from Central Africa, New Guinea, and Torres Straits.

The specimens in the *Tinne collection* were collected during what were called the "Dutch Ladies" expeditions into Central Africa. The prime mover in these expeditions was Mademoiselle Alexandrine Tinne, the daughter of Mr. P. J. Tinne, formerly a Liverpool merchant. Miss Tinne embarked from Cairo, in January, 1862, and ultimately reached Gondokoro, from whence she returned to Khartoum, and prepared for a second expedition, which proceeded as far as Wau, and again returned to Khartoum. After four years' residence in Cairo, Miss Tinne determined upon another expedition into Central Africa. "Her plan was to travel from Tripoli to the capital of Fezzan, thence to Kuka in Bornu, and, taking a westerly direction, make her way by Lake Tschad and Wadai, Darfur, and Kordofan." After a few days' travel south of Sokna, Miss Tinne and her European servants were murdered by the Touareg chiefs, whom they had hired as escorts.

The collections were presented to the Museum by Mr. J. A. Tinne and Mr. J. E. Tinne. They contain objects from the Niam Niam, Nueir, Bongo, Dinka, Monbutto, Djour, and other tribes; also from Nubia, Tripoli, Cairo, &c., &c.

LAWES COLLECTION.

The specimens forming the Lawes collection were collected by the Rev. W. G. Lawes, resident missionary of the London Missionary Society at Port Moresby, New Guinea. The collection contains, amongst others, the following: Feather head-dresses, combs, earrings, nose ornaments, necklaces, breast ornaments, armlets, waistbands, girdle dresses, spoons, bags, knives, gourds, chuman knives, musical instruments, pottery vessels, adzes, clubs, paddles, spears, drill, &c., &c.

STOWARD COLLECTION.

This collection is of particular interest, as they were collected on Murray Island, by Mr. J. Duncan Stoward, of Liverpool, during a three months' residence there. The collection consists of spears, arrows, bows, spinning tops, head-dresses, combs, rings, knives, baskets, &c., &c.

THE WALKER ART GALLERY.

The Public Art Gallery of Liverpool is a very surprising result of private beneficence, both with regard to the shrine and the art specimens therein collected. A wealthy Corporation and private gifts have combined to accumulate a rich and varied collection of artistic work of great value.

THE ROYAL INSTITUTION, COLQUITT STREET.

A fine collection of paintings. Amongst them are some which were formerly the property of Mr. Roscoe. The statue of Roscoe and some other interesting relics. A few fine copies of books of great interest, as Leipsic's "Pyramids," and a fine book on the "Catacombs."

SIXTY-NINTH MEETING

Of the Society, held in the Library, Monday, May 14th, 1888.

Mr. THOS. JARRATT in the chair.

The minutes of meetings April 11th (66), April 20th (67), April 28th (68), were read and approved.

The following presentations to the Society were announced:—

250 Maps of the Grand Trunk Railway of Canada. By Mr. A. Wainwright.
Shaw's South Africa. By the Secretary.

Report of the 1887 Meeting of the British Association. By The British Association.

50 Pamphlets, with Map. The Arab in Central Africa. By Mr. J. Stevenson, Largs.

Il Viaggio di Giovan. Leone E. Le Navigazioni di al vise De Ca Da Mosto, Di Pietro di Cintra, di Aimone, di ou Piloto Portoghese E. di Vasco di Gama; di Giovambattista Ramusis. Volume Mico. Venezia Co., Tipi di Luigi Plet, 1837.

Chronica do descobrimento E conquista De Guiné, escrita por Mandado de Elrei D. Affonso V. Pelo Chronista Gomes Eannes de Azurara. This book is translated from the original MSS. by the Viscount da Carreira, and has an introduction illustrated with notes by the Viscount de Santerem. Fine portrait of Prince Henry the Navigator. Pariz, J. P. Ailland, 1841.

These two very valuable books, handsomely bound, have been forwarded (through the Rev. L. Scott) from the Mozambique, and have been presented to the Society by our member Mr. Henry E. O'Neill, H.B.M. Consul at Mozambique, East Africa.

The election of the following members was announced :—

ORDINARY: Mr. R. C. Barker, Mr. William Grimshaw, Mr. S. L. Helm, Mr. Wm. Lees.

ASSOCIATES: Mr. W. J. Freeman, Mr. J. Robertson, Miss A. E. Law.

Several letters and communications were then read and discussed, one of much interest from Mr. John Ainsworth, Boma, Congo.

Announcements of the intended excursions of the Society were then made, and thanks to the Chairman closed a most interesting meeting.

SEVENTIETH MEETING

Of the Society, in the Mayor's Parlour, Town Hall, at 11 o'clock a.m., May 18th, 1888,

FOR THE HOLDING OF A CONFERENCE ON THE NYASSA QUESTION.

The chair was taken by Dr. GREENWOOD, the chairman of the Council.

Letters apologising for unavoidable absence were read from His Worship the Mayor, Lord Derby, Lord Aberdare, Lord Egerton of Tatton, the Bishop of Manchester, the Bishop of Salford, Sir John Kirk, M.D., Professor Henry Drummond, Mr. James Stevenson, Largs, Mr. J. F. Hutton, the Rev. J. Mackenzie, and a number of others.

The following letters were read :—

Sir John Kirk wrote : "There is no chance of my being able to be present at the congress of your Society for considering the East Central African question. I am still in bed, and even after I am able to move it will still be long before I am able to walk with any prudence. I trust the discussion will call attention to the importance of holding the trade of East Africa. We have, owing to political considerations, allowed ourselves to be squeezed out of the paramount position we held by the Germans, whose only object is to gain commercial advantages such as political influence in the East secures. Between Aden and Natal we have no single port under our control to give us a refuge for our commerce in time of war or to keep up our cable on the east coast."

Mr. J. F. Hutton wrote : "I trust the conference will be successful in all respects, and unanimous in urging upon Her Majesty's Government that as the navigation of the other great African rivers, the Niger and the Congo, has been declared by the European Powers to be kept free to the flags of all nations, so that of the Zambesi shall not be barred nor the interior deprived of the only existing means of free access, and of the introduction of civilisation and commerce."

The Rev. J. Mackenzie wrote : " In the scramble for Africa among the European Powers it seems to me to be understood on all hands that it is a peaceful scramble, and that in no case is European 'protection' or domination to be imposed against the wishes of the native inhabitants. I think also that the actual condition of affairs on the ground should always be taken into account when claims are put forward by a European Power. It is easy to point to a district on a map and lay claim to it ; it is quite another thing to face the difficulties and dangers and expenditure involved in introducing commerce into a new and rude country. If one European country puts forward a map claim while another has established a real claim on the ground, and with the approbation of the inhabitants, it seems to me that the mere map claim becomes of no value whatever. I beg to express the hope that you will find the Government more alive to British interests north of the Zambesi than it has shown itself to be with reference to the magnificent country extending to the southern bank of that river. This vast region, largely unoccupied, was actually offered to our Government by its native inhabitants, with the single stipulation that protection should be afforded to them in their holdings. But this offer has for years been treated with supine indifference."

The Rev. Professor LINDSAY supposed that he had been asked to speak simply because he was the convener of the Missions Committee of the Free Church of Scotland. These missions occupied almost the whole of the west side of Nyassa. The Conference was limited to discussing British interests in Nyassaland, and he thought that was a wise limitation, because the great question now to be faced in Central Africa was showing itself in more acute form there than anywhere else. That question was nothing less than this—whether the Arab or the European was to rule in Central Africa. Were the principles of Christ and the humanitarian principles of Christianity or the principles of Mahomet, with its system of reckless waste of human life and licensed robbery, to guide that unhappy country ? While European Powers were exercising themselves at present by making maps and painting on them various spheres of delimitation, those best acquainted with the state of affairs in East Central Africa said that, after all, those who held the power there, and were exercising it in the most horrible way, were the Arabs, who had also derived the greatest benefit from the discoveries of European travellers. While speaking of British interests, let him explain why they were in Central Africa. So far as Great Britain was concerned, what produced their presence there dated from 1858, when Dr. Livingstone was sent out on a special expedition by Her Majesty's Government to the Zambesi, with the full consent of the Portuguese Government, to open out the interior of Africa to commerce, through the Zambesi and its tributaries. A despatch was written by the Earl of Clarendon, dated 19th April, 1858, to the chief of the Zambesi district, setting forth that Britain was a great commercial and Christian nation, desirous of living in peace with all men ; that the slave trade was hateful to her ; and that her desire was to open up the country to peaceful commerce. Livingstone on that expedition discovered Nyassa and Shirwa lakes, and, what was more important to that conference, the Shiré route. Livingstone made subsequent discoveries, all of which were put down in tabular form by Mr. James Stevenson, at whose suggestion the Universities Mission, which must always be spoken of as being first in the field there, sent out its first expedition. Of that first expedition of the Universities Mission he could not speak without the deepest feeling. The men who went out with it laid down their lives, that their bodies might be the stepping-stones for others going after them. And if any missionaries or traders were there now, it was by a pathway made for them by the sacrifice of the lives of devoted leaders of the Universities Mission. After due prospecting, the churches in Scotland sent out missions, out of which had grown two trading companies. One of the latter—Messrs. Buchanan Brothers—was at present working in a most interesting way in establishing plantations, in which they were giving object lessons upon the comparison between slave labour and free labour.

Those who declared that Africans were lazy had just got to see what Messrs. Buchanan could do in their plantations and their opinions would change. The other trading company was the African Lakes Trading Company, which was not started simply for making money, but to help the missions, and for the purpose of developing legitimate trade, by which was meant trade which did not include the destruction of the African races through strong drink. This company had also refused hitherto—whether wisely or not, was a question on which he expressed no opinion—to have anything to do with the distribution of guns or ammunition among the natives. Why had the missionaries gone there? They had gone there because they believed in the common brotherhood of mankind, and he wished to place the work done there not merely upon any theological ideas, but upon the footing of that common brotherhood, which taught them that the evils under which their black brethren laboured, were such as they should do their best to remove. The slave trade was the great curse of the central region of Africa. The British Government had done, and no doubt was doing its best, to put down that trade, so far as that could be done by watching the coast. He would not like to charge the British Government with being indifferent to it or with showing a decreasing interest in the suppression of the traffic, but Dr. Livingstone held, and a great many other Englishmen and Scotchmen had held, that the only way in which the slave trade could be stamped out was by getting at its source. With the route by the Shiré opened up, which would, in all, give a waterway into Central Africa 1,300 miles long, it was thought that a knowledge of the results to be achieved by free labour, combined with overbidding the slave traders for the products of the country, would be sufficient to settle the slave raids. Alone the slave trade did not pay. The profit was obtained by the double transaction in slaves and ivory. Therefore if the slavers could be outbidden for the ivory it would at once make their trade unprofitable and kill it. This was what the missionaries and the African Lakes Company aimed at, and the outbreak which had occurred proved that the Arabs were seeing and knowing what good prospects there were of this policy making headway. He described how vast regions in Africa had been depopulated within very recent years, and how, in other cases, a partial depopulation had resulted from slavers' raids. Touching the cruelties of the slave trade, he said it showed the utter disregard of human life on the part of the Arabs when they found that, according to Mr. Stanley's calculation, only 1 per cent of the slaves taken reached the coast alive. Many were killed at the start, and the journey to the coast was such a horrible one that it was calculated that in order to get their ivory carried through, the slavers actually required to start with a number of slaves six times larger than they finished with. In other words, five out of every six died on the road. Having quoted Mr. James Stevenson's pamphlet on the fearful tortures inflicted on the slaves, Professor Lindsay went on to remark that they did not want a British protectorate in Nyassaland. What was wanted was the Zambesi kept open, so that the missions could have a free hand for their work. The great thing they desired was the neck of the bottle kept uncorked. The missionaries did not want interference directly on their behalf. They had great influence among the natives, and they were not deficient in Christian heroism, as was proved by the fact that when anyone fell at the one unhealthy mission station they had, there were always half a dozen volunteers ready to take his place. They believed that the African Lakes Company could settle the Arabs, and he did not think there was anything to say against the Germans, who he believed would lend their influence by-and-by, not only to put down the slave trade but also the drink traffic. Neither would he say anything against the Portuguese, except that they were not to prevent other people from doing what they could not do themselves. There must be no dog-in-the-manger

policy. If free entrance was given by the Zambesi, the missionaries and trading companies would do the rest. He would appeal to the great commercial city of Manchester, where commerce and interest in every cause of humanity had gone hand in hand, to do something to back up the struggle which the African Lakes Company had now engaged in.

Dr. R. N. CUST (London) said this was a very grave question indeed, and required to be considered from every point of view. He knew Africa very well. He had studied it for many years, and written books about it, and he was deeply interested in all the missionary societies at work there. The question, however, was not to be decided entirely from the missionary point of view. There were four interests concerned in the matter. First of all there was the geographical explorer and man of science. He passed over the country, made his inquiries, and left no track behind him. Then came the missionary, who wished to establish himself in the country. The work of the missionary was a glorious work, of which England might be proud. Intending to establish himself in the country, whether the people liked it or not, the missionary went independent of governments. There were four missionary societies interested in Lake Nyassa—the Congregationalists' Missionary Society, which merely used Nyassa as a means of passage to the country beyond; the Episcopalian Mission, represented by Bishop Smythies, the real centre of which was at Zanzibar; the Mission of the Established Church of Scotland at Blantyre, which had not had any trouble with the Arabs; and the Mission of the Free Church of Scotland on Nyassa, upon which the real pressure from the Arabs had fallen. There was no other society, Protestant or Catholic, upon the lake. The third interest in the lake was the merchant interest. In this emporium of merchants he wished to speak with great freedom. If all merchants were like the African Lakes Company they would be glad to welcome merchants in Africa, but his experience was that if slavery had killed its thousands the British merchant with his liquor had killed tens of thousands. There was no use disguising it—the British and German merchants in Africa were doing incalculable mischief. The fourth interest on the lake was the British people as represented by the Government. It was an open secret that a few weeks ago a deputation from the missionary societies waited on a most distinguished personage in London. He attended as representing the Anti-Slavery Society. Two grievances were stated. One was against the Portuguese with regard to the closing of the Zambesi, and the other against the Arabs. The oracle had replied most distinctly that the Zambesi would not be permitted to be closed, even if it were necessary to employ force. With regard to the Arabs the oracle was also very distinct—nothing would induce the British Government to interfere with them. A cynical remark was added that the missionaries should arm themselves and fight. That remark showed a misunderstanding of the principle of Christian missions. Missionaries were not wanting in courage, but they do not war with carnal weapons. And in speaking of this matter he would like to call attention to an article in the February and March number of the admirable missionary periodical conducted under the authority of the Bishop of Salford. In that article it was urged that arms should be sent to the missionaries to enable them to fight their own battles, and a fund was being raised for this purpose. He thought this movement should be strongly opposed in the interests of all missions. As to general policy, he did not think much good had followed from the interference of the Government. This was illustrated by the present condition of the Soudan, which was now closed against all progress as a result of the vacillating action of the Government. If we interfered at all, the only way to do it was to send a British force and annex the country in question. And it seemed to him that in appealing to the arm of flesh the missionary societies had some such idea in view.

Professor LINDSAY said he must interrupt, because they were being misrepresented. The object of the deputation to Lord Salisbury was mainly to have the Zambesi waterway kept open.

Mr. CUST, continuing, referred to the condition of the Niger country as showing the evils which followed in the train of British civilisation of a rough-and-ready kind. The Congo, fortunately, had been taken under the care of the King of the Belgians and his Society, and he thought it would be a good thing for the Zambesi if the King of Portugal were to do for that river what the King of the Belgians was doing for the Congo. (No, no.) Why not? The King of Portugal was as good a Roman Catholic as the King of the Belgians. His advice was this: do nothing except secure the opening of the Zambesi.

Bishop SMYTHIES explained, with reference to a remark previously made, that the reason why Zanzibar was the basis of the operations in Africa of the Society which he represented was because that was a most natural arrangement, and because from the direction of Zanzibar the great majority of the caravans proceeded for the purposes of trade in the interior. With regard to the slave trade, he agreed that the British Government had not given up their action in this matter. British ships were always cruising from Zanzibar on the look-out for slave vessels, but there was no doubt a good deal of complication about the slave trade, and unless that comparatively small number of people in England who were anxious to bring pressure to bear in this matter exercised their influence, there would be gradual relaxation of the watchfulness of the Government over the slave dealers. Captains of ships had said to him that there was no doubt of the Government being very half-hearted in this business. He did not think the Government could be blamed, seeing that everything was now done by agitation, and there were so many interests to be looked after in various parts of the world. When it was asked where slaves were taken to he would point to the Island of Pemba, where the clove plantations were cultivated by slaves. The climate there was so extremely unhealthy that the clove cultivation would soon cease if the importation of slaves was stopped. Still it was a puzzle what became of a great many of the slaves. At a station of the Central African Mission on the Rovuma, they constantly saw large droves of slaves, and whither they all went was a puzzle. They knew that the coast was watched, and that though there was a certain exportation of slaves it was not sufficient to account for the great number of slaves seen. It was supposed that they were bought on the coast and put to work in the plantations, being then smuggled out of the country in small numbers. He followed Professor Lindsay in not desiring a British protectorate. The missionaries were not afraid to face the natives; what they feared was interference from the Portuguese and the Arabs; and he did not agree with any view expressed that the British Government could not put some pressure upon the Arabs through the Government at Zanzibar. He deprecated altogether the idea of a Portuguese protectorate in Nyassaland. It was ridiculous to suppose that they could protect any body there, seeing that they had to pay tribute to a native tribe on the Zambesi for their own protection. As to the trouble which had arisen on the north of the lake (Nyassa), he had received a letter from Archdeacon Maples, in which he stated that he had heard that the African Lakes Company were raising a force of thirty white people, the result of which he feared would be a going too far in the way of conflict with the native tribes. Their position was difficult, but he thought that all traders on Lake Nyassa should be very careful whom they introduced there. They should not introduce a riff-raff sort of population, and thus disgrace their countrymen in the eyes of the natives. Something had been said about treaties, but he begged the meeting to remember that treaties in Africa were of the most unreal character, because the whole state of proprietorship was of

the most complicated kind, and there were very many rights to be considered and satisfied before any treaty could have any value in the eyes of the natives. He denied the truth of the charges of laziness brought against the African natives, and said that except in cases of special complications a stranger might with safety go almost anywhere among them if he would only treat them fairly and properly.

The Rev. Dr. M'MURTRIE said he represented the mission of the Church of Scotland in Africa. The mission included eighteen or twenty Europeans, about the same number as in that of its brother mission of the Free Church of Scotland. Each of these missions was spending about £4,000 a year, and including the trading companies there had been spent of British money on Nyassa from £150,000 to £200,000. The missionaries were in no sense to be taken as fighting men. What they wanted was that Nyassaland should be left to the missionaries and the legitimate power of the trading companies. He was sorry to hear what Dr. Cust had said of their interview with a distinguished personage, who had spoken to them with great frankness on the understanding that no reporters were present. The impression Dr. Cust had received was not that made upon his mind; and he would be sorry if it went out from this meeting that the British Government was going to leave the Arabs with a free hand to carry on their slave raids as they liked. The British Government would do in Nyassaland for the protection of the missionaries and the trading companies exactly what the public opinion of this country would lead them to do. We did not want the Portuguese in Nyassa any more than we wanted the Arabs. He did not want to say a word against the Portuguese, and it was to be kept in mind that the missionaries out there did not see the best of them, because the settlement was a penal settlement.

The conference then adjourned.

The conference resumed at three o'clock, in the same place, when the Venerable Archdeacon ANSON presided.

The Rev. HORACE WALLER said it was his great honour and privilege in times past to be associated with Dr. Livingstone, and therefore in some measure he represented the past as well as the present. It had been during many years a weary task in looking to the four winds for help. They had never been able thoroughly to instil into the minds of their countrymen the great claims which this work really had on the hearts and pockets of all Scotchmen and Englishmen. It was not because there were not good hearts in Scotland and in England, but it was a far cry to Lake Nyassa. Some way or other they had rested on their oars since the day when slavery was supposed to have been put an end to; but that which Dr. Livingstone left behind him was bound to lie incubating, and in the meantime an amount of attention was directed to this part of the world in which one could trace the hand of God, and things had grown and grown until at present it was easy in any large commercial centre to get a number of right-minded men to listen to the subject. He did not think there was any more happy augury than the upgrowth of new geographical societies. They must look to these young societies for great help in Africa. He had heard with astonishment that there should be found here anyone who was bold enough to propound the novel theory that in the Portuguese power we had a coming strength in that part of the country. While not wishing to be unneighbourly, they must not be blind to their neighbours' faults, and they must not, when it came to a question of handing this country over to the Portuguese, let the subject pass without something being said from the pages of history. Portugal had held that country nominally for hundreds of years, but owing to her own decadence, and owing to circumstances which he could not go into, her former glory had departed, and she could not any

longer control those enormous masses of the world which formerly she used to write her name across. It was said, and perhaps with some truth, that at the present moment we were losing our hold in Africa. He had the misery to hear a lecture delivered the other night at the Royal Colonial Institution by Sir Donald Currie. At the close of a very long and clever paper with regard to what he had seen and heard in South Africa, he said he came home with one impression stronger than another. Nothing, he said, did he see so strongly marked in South Africa as the utter disbelief in the stability of everything English, the utter lacking of dependence on any promise made by a British Government. That was a very lamentable thing to say. It was an alarming state of things, but was it to be wondered at when we found the echoes of Majuba Hill spreading all through Africa, and the miserable travesties concerning Khartoum and General Gordon's death. He had thoroughly come to the conclusion that in all these difficulties public pressure was the thing that was needed. The Portuguese rule in Central Africa was a thing to be deplored, whether it had been in the past, whether it was in the present, or whether it was to be in the future. He moved "That this conference has heard with profound interest the statements of the representatives of the Nyassa trading companies, of the missionary societies, and of travellers from that region as to the history of the opening up of the settlement, the origin and progress of commerce and Christian civilisation, and of the trouble brought upon the peaceable people by the Arabs from the north."

The Rev. L. SCOTT, who was introduced by the Chairman as coming from Nyassa and as having aroused much interest by his letters on the attack on Karonga, seconded the resolution. He said that having dealt with the Nyassa question already in the *Manchester Guardian*, he would content himself with a few words chiefly upon Dr. Cross's letter, which appeared in the same journal that morning. Dr. Cross said: "A council meeting was held to decide as to what steps should be taken in the circumstances. Both Consul Hawes and Consul O'Neill advised us all to leave the country for six months, and return in that time with more guns and plenty of ammunition." It was a slight inadvertence on the part of Dr. Cross to put Consul O'Neill's name as wishing to leave the country. Consul O'Neill was very anxious that the Arabs should be dealt with as soon as possible, and he knew as well as anybody that leaving the country for six months meant leaving some of the very finest natives in Africa to the mercy of the Arabs. Dr. Cross also said: "Further, we are cheered by learning that it is only a very small section of the Arabs that have brought this great wrong on the white community. Indeed, true Arabs spurn M'loze and his party, and refuse to call them Arabs, and say they are little better than the natives." They refused to call them Arabs because they saw plainly now that it did not pay. There was proof now that the Arabs who made the attack at Karonga were supplied by and were in the pay of Kabunda, who had his supplies from Zauzibar, through which place England certainly might bring pressure to bear upon the Arabs. It was only those who knew the politics of the coast of Africa as well as the politics of the interior who could form a true judgment in the matters they had met to discuss. He pointed out the great difficulty which existed in tracing the origin of the proceedings of the Arabs, and added that the African Lakes Company ought to be clearly distinguished from the missionaries. Given free play and the permission to import arms, he believed the company would be made strong enough to protect both the missionaries and itself. No one wanted to take the offensive. They did, however, wish to be strong enough to defend themselves. Hitherto the want of interest displayed by the Government in the matter, resulting in the strangling policy pursued by the Portuguese at the ports, had rendered them unable to provide for their own protection. Pressure must be put upon the Government to enable them to do this.

Mr. W. EWING, secretary of the African Lakes Company, said there could be no difference of opinion in this country, or in any other country except Portugal, that the Zambesi should be free to the flags of all nations. The river had become of great importance. It was available for reaching the Congo territory from the east coast, and it was also a highway to the regions behind the German sphere of influence. It was surely preposterous that Portugal should step in and take possession of it, and stifle the great interests which hung upon the river being free to all flags. It was, he said, about ten years since the company settled on the shores of Lake Nyassa. The Portuguese tariff of 1877 stipulated that goods should only be subject to a transit duty of three per cent, and on this understanding British capital was invested on that remote shore. It was, therefore, with consternation that they received lately an intimation from the Portuguese authorities that they must either become Portuguese subjects or sell their steamers to Portuguese subjects. One of the steamers was arrested, and was only set free, after some expostulation, on the condition that in four months she was to be sold to Portuguese subjects, or that the members of the Company should themselves become Portuguese subjects. Notification of this state of things was at once made to Lord Salisbury, and after communication with Lisbon the English Foreign Secretary was informed that a telegram had been sent to the authorities at Mozambique to take no further action with regard to the steamer "in the meantime." The company did not consider this was satisfactory, and had intimated their opinion to Lord Salisbury. On the general question he thought it was important to see that while the Zambesi was made free to all nations, the Portuguese were not allowed to impose prohibitory duties. Mr. Ewing mentioned that in an attack which had lately been made by the Arabs upon a station of the company, the natives, who seemed a noble race, had taken part with the members of the company and driven back the Arabs. The results of the recent experience were not discouraging. He was sure the sympathies of the meeting would go out heartily to the gallant little band of Englishmen and Scotchmen who were holding their position under such difficulties. Supplies were needed, and they received with consternation the news that the Portuguese had stopped a consignment of stores and ammunition at the mouth of the river. The company had, of course, at once made a representation to Lord Salisbury, with what result he did not yet know.

The Rev. T. WAKEFIELD, missionary of the Methodist Free Church, East Africa, supported the resolution.

Mr. W. B. BLACKIE (Royal Scottish Geographical Society, Edinburgh), also supported the resolution, which was carried.

Dr. A. L. BRUCE (son-in-law of the late Dr. Livingstone), moved: "That this conference desires to urge upon Her Majesty's Government that as the navigation of the other great African rivers, the Niger and the Congo, has been declared by the European Powers to be kept free to the flags of all nations, so that of the Zambesi shall be not barred, nor the interior deprived of the only existing means of free access, and of the introduction of Christian civilisation and commerce."

The Rev. F. O. SUTTON, M.A. (Tyneside Geographical Society) seconded the resolution.

Mr. GILBERT BEITH said the work in Nyassaland had been begun and was carried on in the spirit and power of Livingstone, and he did not know anything quite like it anywhere in the world. The African Lakes Company was not started with the idea of making large dividends. The intention was, while developing a legitimate trade, to civilise the district as far as possible. It was said that the African trade could not be carried on profitably without including the sale of drink; but the African Lakes Company strictly prohibited the sale of drink so far as their influence extended.

The Rev. G. S. REANEY also supported the resolution. It seemed to him they should avoid any suggestion in communications with the Government of using force. They had too good a case against Portugal to need to hint at force.

The Rev. HORACE WALLER said that if the true facts of the case were known—that British subjects had been ruined and the British flag insulted—there was still kick enough left in the British lion to induce it to say that there had been enough of this kind of thing.

Mr. RICHARD COBDEN PHILLIPS called attention to the question of what was meant by the freedom of navigation. For instance, any nation could send its vessels into the Congo free of duties, but goods taken to a port of the Congo State had to pay the duties of that port, and those goods taken to a Portuguese port had to pay Portuguese duties. It appeared that the freedom of the Zambesi would be of a different kind to this, and would not be worth calling freedom. He did not see what right the Portuguese had to levy contributions on traffic by way of the Zambesi to the Nyassa.

Mr. EWING said what was asked for was absolute freedom.

Mr. BRUCE remarked that goods to be consumed in Portuguese territory should be subject to Portuguese duties, but this should not be the case with transit goods.

The resolution was carried.

Mr. C. S. HANKEY (London) moved: "That this conference also urges Her Majesty's Government to take such measures at Zanzibar or elsewhere as may effectually check the increase of slavery in the Nyassa district, and that the chairman be requested to transmit the resolutions of the conference to Her Majesty's Secretary of State for Foreign Affairs."

The Rev. W. H. PENNEY, M.A., secretary to the Universities Mission to Central Africa, seconded the resolution.

Mr. C. H. ALLEN, secretary to the Anti-Slavery Society, supported the resolution. The resolution was carried.

On the motion of Mr. R. C. PHILLIPS, seconded by the Rev. RIGBY MURRAY, a vote of thanks was accorded to the mayor for the use of the parlour, and to the gentlemen who had presided at the conference.

The resolutions of the Conference were forwarded to the Most Noble the Marquis of Salisbury, K.G., and the following reply was duly received:—

"28th May, 1888.

"Dear Sir,—I am desired by Lord Salisbury to acknowledge the receipt of your letter of the 22nd May, enclosing a copy of the three resolutions passed by the Conference held in the Mayor's Parlour, Manchester, on 18th May, in reference to British interests in the Nyassa District.

"I have to ask you to be so kind as to convey to the members of the Manchester Geographical Society Lord Salisbury's thanks for this expression of their views which they have sent him.—I am, yours faithfully,

(Signed) "SCHOMBERG K. McDONNELL."

"Eli Sowerbutts, Esq."

SEVENTY-FIRST MEETING

Of the Society, held in the Memorial Hall, Manchester, Friday evening, May 18th, 1888, in respect to "The Nyassa Question" (see maps), Mr. GILBERT BEITH, of Glasgow, being in the chair.

The SECRETARY gave a short epitome of the proceedings of the Conference, and read the resolutions passed.

The CHAIRMAN said : We meet to-night to express opinion upon the recent proceedings in Nyassaland. Her Majesty's Government nowadays do not feel themselves at liberty to take active measures in relation to any question unless urged by public opinion. Our meeting to-night is for the purpose of expressing that opinion, and to demand two things, viz., (1) That Her Majesty's Government shall see to it that the great river Zambesi, on the east coast of Africa, shall be open to the flags of all nations, and that no one nation shall have the right to exclude from that great waterway into the interior of Africa every other flag but her own, as Portugal now presumes to do. (2) We demand that Great Britain shall assert her influence at Zanzibar, which is the centre of the Arab power in Eastern Central Africa, so that Arab slave-raiders in the interior may clearly understand that their nefarious trade shall not be carried on with impunity. These are the two points we mean to emphasise. The resolutions passed at the conference earlier in the day will also be submitted to this meeting for approval.

The Rev. HORACE WALLER, M.A., Twywell Rectory, said : It may be well that, as my opportunities were greater than anyone else's of knowing the programme which was originally sketched out by Dr. Livingstone, and as memory revives under the stimulus of this meeting, I tell you what the keen eye and strong common sense of Livingstone foresaw as the necessary operation to be carried out in that region for checking the slave trade, and for bringing about a better state of things in place of it. You all know what the object of Livingstone's life was. As far as one is permitted, with one's own human short-sightedness, to trace the hand of God in history, I do believe that Livingstone was raised up for a very special purpose. He was a man eminently fitted for the good work he had to do. He was a man of indomitable courage, of extraordinary physique and extreme cleverness. In any walk of life he would have come to the top, no matter where he had been placed. He had this great qualification, moreover, not only when on the Zambesi, but wherever he was, he was a most truthful observer, the most truthful I ever came across. That is a great qualification. We who are connected with the different Geographical Societies know what a very great temptation it is for an explorer to find himself a hero when he comes home to England, and has map-makers at his heels, and people continually after him trying to get him to delineate something or tell some story. It was impossible to get Livingstone to exaggerate anything. It was his tendency to underrate, rather than to overrate, his particulars. But if there was one thing which he saw should be carried out for the resuscitation of that country, it was the abolition of the slave trade. He was dreadfully depressed by the existing slave trade. I remember travelling on the Zambesi and Shiré with him in the Pioneer, a steamer which the Government had sent out for use there, but which was incompetent to stem the currents, as she drew too much water and was constantly grounding on sandbanks. Perhaps the most downhearted moment I ever experienced in his presence was one morning when we had got aground in a thick fog in the middle of a marsh, with no wood or fuel to be got for miles, and with nearly the whole boats crew down with fever. He was excessively miserable. He asked me to go off on a wood expedition, and I really could not find in my heart to speak to him, but I was obliged to say something, so I at last said, "I know what is on your mind, and I quite sympathise with you." He brightened in a moment and said : "The very fact of you, my friend, being with us here, is quite enough to dispel all gloom when I think of it, and I really should be very thankful if I was not a very happy man." About six months afterwards, he and I were at a place called Katunga, which is on the river Shiré. It was a hot day, and I remember that as we lay in the shade there he sketched out

this future. He said, "Now, what we want is a man like Rajah Brooke. If we could only get some Englishman, who, instead of trying to immortalise himself by killing so many elephants, would really try to make himself worthy of being held in esteem by future generations, would come out here and put himself at the head of a tribe, would give it to be understood by others that he did not wish to be aggressive, but that where he was there should be no slave trade, and would raise up a sort of city of refuge for waifs and strays, he would at once get an enormous population around him, and I believe it would be the beginning of better things." A few days afterwards we came across troops of slaves coming down under Portuguese servants to be led into the interior of the country to be bartered away for ivory. I do assure you that from that day to this—although that was in 1861—each year has tended more and more to convince me that this matter of the slave trade is the heart of the situation. I cannot tell to whom I speak or where my words will go, thanks to the press, but I would advertise through the length and breadth of the land this, viz., that for the numbers of young men, young officers, some of the finest fellows in the world, going about in the neighbourhood of the Victoria Nyanza and on Lake Nyassa itself, elephant shooting, there is a nobler life to be led and a far greater object to be carried out, and if such do want a little shooting there is plenty to be had and to spare. Why is not the man forthcoming? There are as good fish in the sea as ever came out of it. Rajah Brooke was a splendid man. The very example of his life shows what possibilities there are in individual action, and should nerve and encourage other men to go and do likewise. In the meantime things have taken their course. Missionaries have gone out, have died, but for everyone that has died there half-a-dozen have offered themselves as perfectly willing to take the vacancies. I think I may say for those missionary societies who are working together with the Universities Mission in one common and great cause, that the difficulty is not so much to find men for such work as to find the money to back such men up when they are there. I declare that there is nothing more gratifying in these days than to note the marvellous change which has come over this missionary service. Instead of its being a matter of desertion as it used to be thirty years ago, we have some of the finest of England's sons and daughters willing to take up this work in that country. We know that Lake Nyassa has been, any time during the last fifty to sixty years, the very innermost circle of the slave-trade operations, and that is the reason that it is being attacked so energetically by British missionaries. It is worthy of all sympathy, and it does seem to me, that just as a prophet has little honour in his own country, and just as we know so little of our greatest men, so this great cause in England lacks sympathy simply because somehow or other people will not be instructed about it. When we go to the Foreign Office to talk about Lake Nyassa and Nyassaland, and to urge that the Zambesi be kept open for fair dealings for the Portuguese and ourselves, it is not because it is a mere trading venture which is in question, but rather the most extraordinary venture of the 19th century. Look over the whole world and say if you will find so many lives, so much treasure, spent as on that particular spot, for one particular purpose, viz., to break down the slave trade, not with sword and cannon, but by the great influences of civilisation and Christianity. That has been the programme since the day that Livingstone came home to England to tell us about it, and, under God's good providence and fostering hand, it has extended and grown until the present moment, and never was growing so much as at the present moment. So that really when one goes into the Foreign Office to talk about it one feels that it is strange that the Government should not look at it in the same way as we look at it. We think our country ought to be proud of it, and our Foreign Office ought to say, "We know in our own hearts it is worth encouraging, and we know that this country

will look upon it as one of the dearest enterprises and best worth holding of any she has put her hand to." There are the large Presbyterian churches in the north and the English churches in the south. We are all working hand in hand there, and, let me tell you, something ought to be put to the credit of that land as enough has been put to its discredit. It swallows up its inhabitants and produces all sorts of quarrels amongst Arabs, natives, and others, but it has this faculty, inasmuch as it rubs off those sharp corners which we all find in the way when men get discussing religious subjects in England. And if there is one thing to add to the beauty of the enterprise which is better worth regarding than another, it is the unanimity and harmony with which all are working there. We know that we are powerful *together*, whereas we should be weak if quarrelling and button-holing Ministers and Foreign Offices, but the story we have to put forward is one of unity in a great endeavour, centreing in Livingstone, and worthy of his name and fame. Singularly enough, the northern part of Africa has, as you know, been opened up to our notice in an extraordinary way by the exertions of one man. It was my great privilege to be, I hope, amongst the dearest friends of General Gordon, and when one looks back on his life and remembers the single-hearted nature that was in him, and the single eye he had to the raising of those tribes, one identifies the spirit of Livingstone in him, and could see again how much can be done by an individual, by one man alone, who would give up his life, and who is fitted, as both Livingstone and Gordon were, for the work. I hope we shall have the men forthcoming. In the meantime you have the necessary material in the African Lakes Company which is working there. It was, if I am correct, one day when I happened to be on the platform of the Midland Station that two very tall and very strong young Scotchmen came up to me with a note of introduction, and said they wanted to talk to me about Africa. They had come down to see me, and they asked what I thought would be a good thing to do. They were not ministers or clergymen, but they wanted to lend a hand to Livingstone's work. I pointed out to them that Livingstone's idea was to place a steamer on Lake Nyassa with a view to opening up legitimate trade with the natives, and show them that they need not barter away their women and children, but take calico and other things up to be exchanged for ivory and the goods the natives produced. That idea has practically developed, as is evidenced by the presence of the Messrs. Moir on that lake, most energetic men. Many there are who are energetic, and many there have been who have found that they had mistaken the country, but these men have shown no turning back. They, the Messrs. Moir, are the most energetic men I ever came across. I do not know what is in the minds of the African Lakes Company, but I know that they are surrounded with great difficulties. Africa produces difficulties as thick as mosquitoes, but difficulties are, after all, to be got over. I think that these men may be in a great measure left to their own common sense and good hearts. They are to do what they find best, as, although we have rapid communications, and the telegraph now from Mozambique, a great deal may occur in twenty-four hours. One is thankful to hear that these Arabs are not of one mind. That is not to be wondered at at all. There are Arabs and Arabs. There are men of the Tippoo Tib class, the man who is with Stanley at present. He is a half-bred Arab, a man of mark, indeed a most extraordinary man, a singular leader of men, one of those who turn up and take their places at the head of affairs. But then, on the other hand, you have a parcel of men who have very little Arab blood in their veins, half-castes of every kind, who ape the manners of the Arab, wear a fez cap, are exceedingly cruel and bloodthirsty, and who pass for Arabs. There is even another class of Arabs. These have fallen out with the men who have been attacking the African Lakes Company lately. Nothing succeeds like success, and if you get beaten you are likely to lose your following. Now, we have an idea that, although all the

Arabs have a bad word for this man M'Loze, and repudiate him, had he beaten Messrs. Moir he would have been looked upon as a very great man. The day of adversity has come for him. You have this position to a certainty: you have a very large and settled population at the extreme north of Lake Nyassa, who have cast in their lot with the English. They delivered the English the other day, for they came forward in an army of five thousand, and raised the siege, when our countrymen were surrounded by the Arabs. If we ought to have a kindly thought for those men, we certainly ought not to withdraw the Messrs. Moir, but should strengthen their hands and show them that it is a good thing to be the friends of Englishmen, when strangers in a strange land. I think that is about as good doctrine as we can preach. One would be glad to see Messrs. Moir with a very strong station, surrounded by these waifs and strays, who would feel themselves safe from the slave-raiders through being under the wing of the English, the two nationalities making a mutual strength. To carry this out you want not the sinews of war, but those things which demonstrate to Arabs and savages that the British lion is not without claws. I cannot conceive a greater blunder—it amounts nearly to a crime—than to send a number of Englishmen up into that country—as in the case of these traders—and to clip all their claws, so that when they are obliged to try and scratch there is not a scratch in them. If you send those men and say that they must submit to have their stations burnt about their ears; that they must submit to have the men, women, and children, who have believed themselves safe there, carried away in slave-yokes; and all this without on any account attempting to stop such outrages, because there are certain well-intentioned people who will turn up the whites of their eyes and say, you are barbarians, and so forth. Well, I think Rajah Brooke had to put up with all that, and we remember he lived it all down, and at the present moment the state of affairs in Borneo will testify that in spite of evil and good report he was on the right track, the right man there in the right place. You must get a free entrance by that great waterway of Livingstone's discovery to that lake, and not allow the Portuguese to block you out. If the Portuguese had a teeming colony there, if they had goldmines, copper-mines, and sugar plantations—such a state of things, in fact, as you have in Java—I should say, "All this has been built up by years and years of toil and expenditure. They have something to show for themselves, and it is not to be expected that you are to march into the country without so much as saying 'Good morning,' or 'With your leave,' to anyone." But the Portuguese are conspicuous by their absence. Look at the town of Mozambique. It is an enormous lump of a fortress, built hundreds of years ago. There are some very large houses there, almost like palaces, and there is a powerful man-of-war. But the Portuguese will show you a little hill, not five miles away—an easy hunter's morning stroll, in fact—and they will tell you that no Portuguese has ever dared to walk towards the mountains as far as that hill. They told me so when I was there. I asked them if they would let me go on. "Oh, you are an Englishman," they said; "and you can go anywhere you like." There are gentlemen in this room who will tell you, I believe, that the same state of things exists at the present moment. Is it not so, Mr. Vice-Consul of Mozambique? (A voice: "Yes, it is so.") Now, this is Portuguese power. I do not want to be hard on them, but when we have these elaborate blue books and this kind of hullabaloo made at Lisbon about the Portuguese flag, we want to know where the flag is. In that region I have never seen it, except at the mouth of the Kongoni, where there was a poor custom-house officer, who said he had been placed there for committing three murders. Don't let us talk about Portuguese power when it comes to such a pitiable state of things. Let us tell Portugal that we do not want to quarrel, but that if it comes to a question of shutting up a three-mile-wide waterway, which

is very difficult to navigate, it is nonsense, and not to be tolerated. In the interior we see the natives at the mission schools, and the chiefs are sending their sons in troops to be taught. The poor villagers are helping to grow coffee and to make beautiful plantations; and when we see, not merely a grey dawn, but a rising sun of civilisation, is it not hard to be told that it is a matter to be dealt with gently, and that we must hold our tongues, that these matters are under the earnest consideration of the Cabinet? In the meantime, we want to know why the hands cannot be taken off our throats, seeing that we are being strangled. The duties which Portugal agreed to levy upon us have been departed from altogether, owing to a quibble. It is no longer a question of a three-per-cent tariff, but just as much as they like to charge. If this is allowed to go on they will screw us down in our coffins, and there will not be anyone left to tell the dismal tale.

H. W. WILD, Esq. (late of the Foreign Office) said: I have not had the advantage of seeing the country and travelling there with Livingstone, but I knew him well. His expedition was under my charge. I may say that for twenty years I had charge of all the expeditions which have entered Africa, so far as they had any relation to the Foreign Office. So I may be, I think, credited with knowing something about Africa. I can endorse every word that Mr. Waller has said. There is one crucial question with you now, and that is, the navigation of the Zambesi, which is an artery leading into the interior up to Lake Nyassa. It was exploited by us first. We have sent our missionaries up there, we have established trading stations upon Lake Nyassa, we have established missionary stations there, we have spent immense sums of money there, lost valuable lives, and are you now going to have that way stopped which has so long been open? It depends upon you whether the Government say yes or no. I have been long enough in office (and now that I am out of office I can let my tongue wag a little) to be able to assure you that everything that is done at the Foreign Office is done under pressure from without. However the Foreign Office might wish to push trade, it seldom or ever takes the initiative. It waits until it is forced from without. Its motto seems always to have been *Quicquid non movere*. As it has always been in this respect, so it will be in this matter of Lake Nyassa. You must speak out if you want the Government to maintain the free navigation of that river. The navigation is not strictly speaking free, as the Portuguese have to a certain extent the right to levy a reasonable transit duty upon goods passing up and down. But to say that no more British vessels shall go up the river except under the Portuguese flag is utterly absurd. There have beforesometimes been little attempts made to put obstacles in the way, but we put our foot down instantly, and the Portuguese were quiet directly. So it will be again. Things of late have changed in everything connected with Africa. There has been a great game of "grab" going on. Every country has been seeking a bit here or there. It seems that Germany, a country which never sent a vessel for the suppression of the slave trade, or spent a single farthing to that end, is asserting her rights and claiming here and there. What has she done to deserve it? We, England, have kept the police of the African coast. Whenever disturbances have arisen the English fleet has taken the matter up. Do you think that had it not been for that squadron which we have maintained on that coast the trade with Africa would have been what it is now? Nothing of the kind. At one time we kept the police of that whole west coast of Africa, and every country benefitted by it. Are you to allow them now, either on the east or the west coast, to oust you out? I think you would be foolish if you did so allow them. No doubt Germany is now the most powerful nation in Europe. We are out of Europe, so to speak, and she may dictate her own terms in Europe, and I have no doubt that statesman who follows the *do ut des* policy knows perfectly well when and where to put his foot down and to take it up. At any

rate, in our arrangements concluded with that nation I think we give up the substance for a shadow in many cases. Now, you must insist on the Zambesi being kept open for the free trade of all nations. Take the Congo to illustrate what I mean. Wherever we have been, it used to be the policy of the Foreign Office to make it understood that we do not want to take possession of any of those rivers for ourselves, but that our object was rather to prevent any other nation doing so. We said we must have such rivers free and open to every nation. We have maintained the police of these rivers, opened them up to traffic, and encouraged trade as much as possible, but we will not be ousted ourselves. We shall be perfectly justified in holding the same language towards Portugal. We do not want exclusive rights, but we claim the right to go into those rivers and trade there on reasonable duties. That, I think, is the policy which should be maintained by this country, and I think that Manchester is probably more interested than any other place in insisting that this policy shall be carried out. You are, to a certain extent, dependent upon not only retaining old markets but in discovering new ones. Turning to the slave trade, there is no question but that within the last few years this has increased. What are the causes of that increase I certainly am not in a position to state. I have been out of office for some years now (although I take very considerable interest in the question of the suppression of the slave trade), and am consequently not behind the scenes, so I cannot tell you why or wherefore, but I can tell you that what I state is correct. Both low down on the south-east coast and also in the Red Sea this is the case. If our trading stations on Lake Nyassa are maintained, I have no hesitation in saying that they will, in course of time, put a stop entirely to the slave trade. You have asked the Government to place a steamer on Lake Nyassa. It would possibly be a good thing, but I confess that the Government in saying that such a thing is pretty nearly impossible for them are quite within their rights. We all know the present constitution of the House of Commons, and how if any expense is incurred you have a howl produced. It is immediately said that such and such a thing is being done for the benefit of a particular set of people, or it is said that there is no justification for such a thing being done at all. Ministers are very, very careful now to avoid any question or any subject upon which they may be called to task in the House. Like the burnt child, they dread the fire. There are so many questions put nowadays, so many outcries, and so much irritability excited in the House, that I do not wonder at their declining to put a steamer on the Lake Nyassa. They have sent a consul, and he has the means of locomotion there in the trading steamers, and I believe he makes use of it. I come now to a point upon which—though to some extent Mr. Waller has cut the ground from beneath me—I wish to say something. It is regarding the question as to what it is open to any young man possessed of means to do on Lake Nyassa. It is a question of money, but not of much money. There are to be found there friendly natives—they are very friendly—who are not cowards, for these Africans are anything but cowards. By organising some of these natives you would have the nucleus of what would become before many years a big kingdom. Look what Emin Bey has done—he has held his position though deserted by everybody. He has not only recovered the post which he lost when the disturbances were at their height, with Lupton Bey taken prisoner and Gordon murdered, but has, in some places, actually increased his jurisdiction, and is now holding what is really and practically a large kingdom. And that, too, he has done with scarcely any means at all. Certainly no Europeans are with him. Do you not think that the same principle may be carried out in other places? There are no big kingdoms in the neighbourhood of Lake Nyassa to prevent the plan being followed. I feel perfectly certain that many of our young well-dressed men of enterprise who would settle on that lake would, in

the course of a few years, establish an immense trading station and raise a powerful state, and would be able to do so without much difficulty. People may think that there would be political difficulties in the way, but my own notion is that such difficulties would disappear as they were grappled with, and that there would be no very great political difficulties. Probably there is one which would have to be dissipated, and that is the claim of the Portuguese to the territory from one side of Africa to the other. They say they have possession of both coasts, and they claim the country lying between. They have tried to make this claim, but it is an utterly absurd one. We might just as well claim, because we have possessions on both the east and west coasts of Africa, that the whole of Africa lying between belongs to us. The Portuguese know nothing of the country, and only one or two have been seen in those regions. I can endorse what has been said as to the powerlessness of the Portuguese except just on the land on which they stand. They just hold the land where they stand and scarcely anything beyond it. I do not think we need be very mealy-mouthed about putting in our claim to free navigation of the Zambesi, and our denial of their claim to jurisdiction or sovereignty over any part of the Nyassa district.

The Right Reverend Bishop SMYTHIES (Bishop of the Universities Mission), said : My claim to speak here to-night rests upon my being the representative of the Universities Mission, which within the last few years has added to its work by organising a special mission on the east coast of Lake Nyassa. To carry on that mission it is necessary for us to have an open way for the transit of goods from the coast by the natural water communication. We have fixed our mission station on the island of Lokoma, which is, I may say, the key to the position on the whole of the east side of the lake. If I confine myself to speaking of what our mission has done, it is not to disparage the work which is being carried on on the other side of the lake, which may be spoken of by those who are directly interested in it. You all know how long a time that work has been carried on, as the work of Scotchmen, on the south and west of the lake. At Lokoma we had to build our mission stations, and as it is impossible, with any prospect of long continuing in health, for any Europeans to live in the towns on the east shore of the lake, we planned to have a central station, with English missionaries and English ladies living on the island, which is comparatively healthy compared with any of the surrounding districts, and to use the steamer which, in memory of Mr. Charles Jansen (who lies buried near Lokoma) was sent out and put together from pieces. We hope to convey by means of this the English missionaries to each of these towns, planting native teachers, trained in our schools at Zanzibar, and to send round the English missionaries to superintend them, and to gather the converts around each together. Already this has added to the needs of trade at Lake Nyassa to such a degree that the African Lakes Company find a difficulty in providing transit, and have been increasing their means to that end so as to supply the requirements of their own stations and our own. All goods from the coast are brought up in steamers by the Zambesi and the Shiré, and across the portage from Katunga to Metope. Their difficulties have become such that they have asked us, when we have an opportunity of doing so, to help them by carrying goods in the Charles Jansen. But opportunities for doing this, without hindrance to our work, are not likely to occur. If a missionary is to do his work we cannot alienate the Charles Jansen for other purposes. We look to the African Lakes Company to carry our goods to the south of the lake. If our steamer is to be employed to go down to Metope, to meet goods coming up from the coast, it must be taken away from its proper work, and we should be unable to carry out our scheme, which is, I believe, the only large scheme for Christianising and civilising the natives which is possible on that part of the lake, owing to its extreme unhealthiness. The houses there are built on spits of sand, with

the marshy ground behind them and the lake in front. The natives choose this manner of dwelling for purposes of protection. You will understand that there should be a free transit for goods, and every facility given us so that our work may prosper. All barter has to be carried on with bulky goods, bales of cloth, brass-wire, beads, &c. Immense quantities have to be brought up continually. If the natural difficulties are so great, you will understand that it is of the utmost importance to us, if our work is to be carried on and developed, that every artificial barrier should be removed, and every facility for the transit of goods increased. As to Arabs—you know a great deal may be done with Arabs. We are now told that the Sultan of Zanzibar is clipped of his power. It has been so in days gone by. It is said that much may be done with the Arabs by pressure, even from a great distance. At the large town of Katakota there is a governor appointed by the Government of Zanzibar, who recognises him as suzerain. At Makamera, the largest town on the lake, a little to the south, there is a court held, which is in every respect a caricature. You must remember that these Arabs have respect for Englishmen, although they know our views about the slave trade. I suppose there was no one more respected or looked up to by them as a friend than Sir John Kirk. He knew them, and they knew him. The Arabs are very careful of trusting themselves amongst themselves. Umberookoo, who joined the rebellion against Said Barghash, was unwilling to trust himself in the lion's den by going up to the court at Zanzibar when summoned thereto. The Arabs will be most polite to you if it suits their purpose, and equally they will cut your throat; but it does not at all follow that they do not respect you. It is a curious composite character. I believe a very great deal is to be done by English people with the Arabs, if it is done in a proper way. The English have very great prestige in their eyes, and the Arabs would rather be friends with us than otherwise, though they know our feelings with regard to their slave-trading operations. The presence of a white man has a very great power of attraction to the natives. If one such knows the customs of the country, and the feelings of the people, this is so. I should deprecate any want of care in the selection of the kind of white people introduced to defend the English stations. The introduction of white men of no character is an unmitigated evil. I would rather see some whites massacred than some really bad men introduced into the country, as their introduction would break down that feeling of confidence in the justice of an Englishman which remains in the minds of Arabs as well as the natives of those regions. The reason why we are met with friendliness and respect, even by those who do not like our interference with the slave trade, is that they believe we are thoroughly just. Of course, it is necessary that trade in that country should be developed alike for the sake of the natives as for the sake of other interests; but I do hope that it will be borne in mind that it is difficult to avoid the introduction of some characters. If a missionary is left to himself, and succeeds in resisting the temptation which no doubt comes to every man in such a position, from the prestige which surrounds him in the eyes of the natives, to claim civil and political power, and remember rather to create and wield a spiritual influence, there is an immense field before him by which to advance true civilisation, as well as true principles of Christianity. I would say here that it is necessary for missionaries to bear the presence of high-handed wickedness sometimes, believing that by his protest, and by the abhorrence which he shows towards evil, the cure of it will be worked. Let me tell you what happened on that little island of Lokoma. Within half-an-hour's walk of our station, four women were burnt for witchcraft. It was a terrible thing! This was followed by something of the same kind. Not far from our station, the corpse of a woman was found lying in the doorway of a house which had been burnt over her head, and there were

actually children playing about outside quite unconcerned. That woman had been murdered by her nephew, on a charge of having bewitched his mother—her own sister. We had only just settled at Lokoma; but I venture to say that near the stations, where we have been settled for any length of time, such a thing would be impossible. And yet such things are the ordinary occurrences of the country among the natives left to themselves. Of course we made a disturbance about it. Had we had any notion of what was going to be done we should have stopped it. As it was, we did what we could. We sent for the superior, or chief of the village where the outrage had occurred, and we put pressure upon him to do what he could to turn the man away from the island. We let everybody know that we would not go near the village. In fact, we tried to “boycott” it, and in that way showed our abhorrence. Every time missionaries do that a strong impression is created, and it becomes more difficult for such outrages to be repeated. These things, however, have in part passed out of sight, and in the regions around our stations have practically been given up. Surely this is true civilisation, gentlemen! And that is the way in which the slave trade will have to be done away with. Here (place shown) are two towns which are very large ones for Africa. They contain from 800 to 1,000 houses. Mr. Jackson, one of our missionaries, was driven away because it was thought that it was through a letter which he had sent to the coast that the slave-raiding was interfered with. I said that we were missionaries, and that we hated the slave trade; that we had no force at our back; that we did not interfere except by persuasion, but that we knew that when people adopted our principles they would give up the slave trade. I also informed them that it was quite a mistake to suppose that Mr. Jackson had done what was laid to his charge, and I think I was successful in pressing this truth home. From the nature of the country a little above that island of Lokoma there seems to me to be a very great future for colonisation, which would not be possible in those low-lying districts near the coast. I found in the valleys, among the mountains, a very rich country, in which there were not only fields of Indian corn but also vast fields of green peas. This shows that the products of a more temperate zone could be cultivated up in those mountains at only two days’ journey, stiff walking, from the borders of the lake. I visited one very striking place indeed, called Unyumbo, in which the country was of the same character. It is a vast plain, completely cultivated, the forests having been entirely swept away. There rises a two-headed mountain, about 2,000 feet high above the plain, and over this mountain there are little hills. You would be quite astonished at the wonderful houses those people build. These houses are all of mud, but they are perfectly smooth, as smooth as these walls. With such a material they bring the science of building to great perfection. Each house has a bamboo roof, thatched, and there is a verandah running all round, with regular places to sit down on, all formed of the same simple material as the house. Those wonderful builders are forced to overcome difficulties through the fear of robber tribes, and so they build these crowds of houses right up to the highest levels. You see none on the plain, as that is all given up to fields as far as the eye can reach. It is almost a scientific cultivation on that plain. Many of the fields were devoted to green peas, such as you have in England. You will see from this that there is a great power of development in that country, and a great necessity that the waterway thereto should be kept open if that development is to go on. We think that pressure might be brought to bear on the Sultan of Zanzibar to check the Arabs. I do not know exactly what power he has now, but I am certain that if the Government put pressure upon him to make him do what he could, he might use a good deal of influence. To give you an illustration of what English determination can do, some of you may remember Dr. Rothe, who came from the coast across to Lake Nyassa. He was

murdered near the lake by his porters, but from my experience I think that there must have been a good deal of fault on his side, as it is contrary to the whole experience of that land for such a thing to occur otherwise. As there was no German consul at Zanzibar at the time, pressure was put on the Sultan of Zanzibar by the English consul, and emissaries were sent by the Sultan right away to Nyassa. The person charged with the murder was taken to Zanzibar and executed for the murder. That, at any rate, shows that the Sultan had very great power, then, over the people who started from Zanzibar, and went into the country far and wide. I think we may fairly ask, not only that the Portuguese may leave us free to go up the Zambesi, but that also when the Arabs try to begin again those terrible scenes, which Dr. Livingstone has described, pressure should be brought to bear on the Sultan. He has made a treaty with the English to put down the slave trade. He has agreed to make the trade illegal, and to do what he can, at any rate with his own subjects, to prevent them from taking part in any way again in atrocities of such a nature.

The Rev. THOMAS WAKEFIELD (Methodist Free Church Mission, Ribe, East Africa) believed that the slave trade as it existed in East Africa was not fully understood here. When he went out in 1861 he did not, he should say, come upon a single black freeman except in the towns on the east coast, where the inhabitants were the subjects of the Sultan of Zanzibar. The aborigines of the country, those who had come from the country to the coast, were all, without exception, slaves. The Anti-Slavery Society in England was doing a great work in furnishing from time to time information on the subject of the condition of the trade, and he thought it would be perhaps a good thing if more branches were established to more widely disseminate such information. When their mission started in East Africa, all their servants and all the men who had to do in any way with building, cooking, manual labour of all kinds, had to be drawn from the coast, and those men were mostly slaves. Their enforced employment of slave labour brought upon them the remarks of the Arabs, but these were got over by the mission refusing to recognise any ownership of the men so employed. As a missionary, and being non-political, he had felt his heart wrung many a time through being compelled to refuse shelter to a poor runaway slave. The Gallas were the finest race of men in Africa. They were of good intellect, physically very powerful, and they had some force of character. In number they were from 4,000,000 to 6,000,000. He had been much delighted in days gone by in personally watching the prowess of English sailors in their conduct of operations directed against the slave-raiders and in taking slave dhows, even in ten-oared boats. Those sailors were often exposed to very great dangers. Their treatment of the poor children was remarkable. He thought the Government deserved great praise for the efforts they had made to suppress the slave trade. The Mahommedan slave trader was not a man to conquer, build up, and civilise any country. He was rather an invader and a destroyer of many fair regions.

The Rev. Professor LINDSAY, D.D. (Free Church of Scotland, Edinburgh): Allow me to propose that, by way of giving practical form to this meeting, we adopt the resolutions which have been come to by the conference this forenoon and afternoon. The resolutions are as follows:—

1. That this conference has heard with profound interest the statements of the representatives of the Nyassa trading companies, of the missionary societies, and of travellers from that region, as to the history of the opening-up of the settlement, the origin and progress of commerce and Christian civilisation, and of the trouble brought on the peaceable people by the Arabs from the north.

2. That this conference desires to urge upon Her Majesty's Government that as the navigation of the other great African rivers, the Niger and the Congo, has been declared by the European Powers to be kept free to the flags of all nations, so that

the Zambesi shall not be barred, nor the interior deprived of the only existing means of free access, and of the introduction of Christian civilisation and commerce.

3. That this conference also urges Her Majesty's Government to take such measures, at Zanzibar or elsewhere, as may effectually check the increase of slavery in the Nyassa district, and that the chairman be requested to transmit the resolutions of the conference to Her Majesty's Secretary of State for Foreign Affairs.

I should like it to be clearly understood that the Scotch missions on Lake Nyassa are one thing, and the African Lakes Company another. I suppose that confusion has arisen from the headings of two newspapers, one the *London Times* and the other the *Edinburgh Scotsman*, who have always headed their letters "Attack on Scotch Missions." No Scotch mission-house was attacked. A letter came to me, yesterday, declaring that the mission houses at the head of the lake are standing intact. The houses attacked belong to the African Lakes Company. Although there is no necessary connection between our missions and the Lakes Company, we feel ourselves almost entirely dependent upon them. It is perfectly possible for the Universities Mission, on the east of the lake, to be independent of the Lakes Company; but for the mission on the west of the lake, we feel that, but for the noble work which the Lakes Company are doing, it would be impossible for us to do our work. From my personal knowledge of the men at the head of that company, I believe that any fears expressed on the part of Bishop Smythies will not be realised. I cannot imagine John or Frederick Moir taking men into that region who would be a source of annoyance or danger. There are two strategic points on this great water-way so often alluded to, which must be held at all risks, if that water-way is to be kept clear. These are the plateau between Tanganyika and Nyassa, with the Stewart Road and the Blantyre Station. If we are to Sarawak that region, it is not to be done by missionaries, who have nothing to do with fighting, unless, of course, under attack, when I suppose a man may defend himself. But there is to be no offensive attack. If that region is to be Sarawaked, the man who Sarawaks it must be firmly established at these two positions. If we hold these two positions we hold the water-way, and if we hold the water-way we cut in two all the great slave routes to the coast, and cripple, if we do not kill, the slave trade. Mr. Waller has described the right we have to that country? Are not the graves of our missionaries the title-deeds to that country? I am inclined to believe that we have made that claim all the more weighty, seeing that a woman's grave, that of Mrs. Livingstone, marks the southernmost limit of our Scotch Mission enterprise; whilst a woman's grave, that of Mrs. Cross, marks the northward limit. We hope to keep the country which lies between those two graves for Christian civilisation.

The Rev. W. H. PENNEY, M.A., Secretary to the Universities Mission to Central Africa, in seconding the adoption of the resolutions of the conference as the expression of that night's meeting, spoke of the importance of the British public knowing, through its Foreign Office, what was taking place in regard to the slave trade. Those who had watched those matters had noticed that of late there had been almost silence in official quarters as to the condition of the trade and of slave raiding in the interior of Africa. He had asked, not that a consul should be placed on Lake Nyassa—there was one there already—but that he should be given a stronger bodyguard. The objection to the idea of provision by the Government of a steamer might be got over by the Government paying for the consul's moving about. He (the speaker) had that morning read his letters from Nyassa, and from Mr. Johnson, on board the *Charles Jansen*, and had learned of the services which the mission steamer had in the public interests done for the African Lakes Company. Goods had been carried and people had been carried, because the public interests at Nyassa at that moment

had made it the duty of the mission to allow such to be done. If compensation was made them from head-quarters, well and good, but what had been done had been done primarily in the interests of the Lakes Company. And if the Lakes Company's steamers could not do their own work, they would certainly not be able to do consular work. But there was nothing to prevent the British Government from enabling the consul to be stronger on the lake. If he moved about more, he would know what was doing in the way of slavery. The consul was there. Let him keep moving about, so that his knowledge of things might grow, and so that it might be known, through the Foreign Office, whether the slave trade was really thriving or declining. Let the Foreign Office prove efficient. A suggestion had been made which might possibly be met by the Government. It was always customary, where consuls were placed in the position held by Consul O'Neill, to give them a certain amount of money for travelling expenses. Possibly, with a little pressure from without, £200 or £300 more might be allowed for such expenses on the part of Consul O'Neill. He (the speaker) felt pretty confident that such an addition would be forthcoming, if so pressed.

The CHAIRMAN (Mr. Gilbert Beith), after taking the sense of the meeting, announced that the resolutions had been adopted.

On the motion of the SECRETARY, seconded by Mr. F. ZIMMERN, one of the hon. secretaries of the Manchester Geographical Society, a vote of thanks was passed to Mr. Beith for presiding that evening. The meeting then separated.

SEVENTY-SECOND MEETING

Of the Society, held in the Library, Wednesday, June 13th, 1888, at 7-30 p.m.

Mr. T. JARRATT in the chair.

Minutes of meetings held May 14 (69), May 18 (70), Conference, May 18 (71), and of the evening meeting, were read and approved.

The following presentations were announced :—

The Modern Languages of Africa. Vols. 1 and 2. By Mr. R. N. Cust, LL.D.

The Modern Languages of the East Indies. " "

Linguistic and Oriental Essays. Series 1 and 2. The Author.

The election of the following members was announced :—

ORDINARY : Mr. Ed. Bradshaw, Mrs. H. Carter, Mr. John Clapham, Mr. Richard Davies, Mr. Alderman Joseph Leigh, J.P. (Mayor of Stockport), Rev. G. S. Reaney, Rev. Lawrence Scott, Mr. John Stott.

ASSOCIATES : Mr. William Cadman, Mr. Thomas Duckworth, Mr. Thomas Farron, Mr. James Gooden, Mr. Samuel Leech, Mr. J. Haworth Pilling.

A communication from the Paris Geographical Society announcing an International Congress to be held next year at Paris, and inviting the Society to take part therein, was read.

The following communication from Mr. J. P. Thomson, of Brisbane, was read :—

THE BLACKALL ARTESIAN WELL, QUEENSLAND.

Hitherto it was considered doubtful whether the boring for artesian water in central and western Queensland would prove successful. Several attempts had been made, with results which were in nowise encouraging to enterprisers nor profitable to the promoters—indeed, the aspect pervading the whole operations of past experiments was so discouraging that pastoralists had no better prospects to look forward to than the very unsatisfactory and uncertain scheme of conserving the limited and scanty surface water supplied by the ever-changeable and often ephemeral rainfall in dams or tanks excavated in soil often of a permeable nature, in localities exposed to the full force of a torrid sun, where a very high percentage of the precious fluid is subject to loss through the effects of evaporation ; while farmers were always in a state of uncer-

tainty as to whether their barns would be filled with the products of a copious harvest, brought about through a liberal rainfall, or they would be reduced to the verge of ruin through the drought of an inhospitable season. Such, indeed, was the condition of affairs in the extreme confines and the central sections of the colony of Queensland up to the eventful 17th December, 1887, when the electric wire flashed through the colony the joyful tidings of the tapping of a magnificent and lasting supply of artesian water at Barcardine, which gladdened the homes of many, and changed the face of the country from a waterless waste to that of fertility, and so stimulated the Government and private contracting companies to energy that additional boring plants were procured and boring operations in various sections of the colony were ordered and forthwith actively proceeded with. The results, so far, have been highly satisfactory, as, on April 26th of the present year (1888), water was struck in the bore put down at Blackall—a town situated on the right bank of the Barcoo river, in latitude, approximately, $24^{\circ} 25'$ south, and longitude $145^{\circ} 28'$ east—at the maximum depth of 1,666ft., which is nearly 1,000ft. farther below the surface level than the maximum depth of the Barcardine bore. The bore was first commenced in December, 1885, with the Pennsylvania borer, under the superintendence of Mr. Arnold; but owing to numerous and varied accidents, the bore had to be stopped in October, 1886, when a depth of 970ft. had been reached, in a stratum of blue shell. However, encouraged by the satisfactory results obtained at Barcardine, the Government transferred the previous contract with Mr. Arnold to the Canadian Pole Tool Company, who, after the surmounting of various obstacles, arising chiefly through the condition of the old operations, continued the bore to the aggregate depth of 1,666ft., when, to the intense delight of the company, and more especially to the residents of the town and district, a marvellous supply of fine soft water was obtained, yielding 288,000 gallons per day. This eclipses the hitherto unrivalled Barcardine supply, and is the wonder and admiration of all whose location affords special facilities for viewing the magnificence of the fluid treasure ejected from the subterranean reservoir. The water, which is perfectly clear, indicates a temperature of 114° Fah. For some months previous to the discovery of water the borer had been cutting through alternate strata of slate and blue clay, until within 22ft. of the water, when the stratum consisted of green sandstone. About 700ft. of 9in., 1,200ft. of 8in., and 1,550ft. of 6in. casings were used in the bore. It is scarcely possible, from an utilitarian point of view, to over-estimate the value of this important national discovery. It has given an impetus to pastoral and agricultural enterprise, and will tend to increase the value of the land tenfold, and to Queensland colonists generally it will produce favourable effects of encouragement which will tend to stimulate their latent energies to activity.

A communication was read from Mr. H. E. O'Neill, H.B.M. consul at Mozambique, on Nyassa Land. (See page 87.) The address occasioned considerable discussion, and the very valuable nature of the communication was commented upon.

The following letter from Mr. J. Rippon, electrical engineer, Formosa, was read, and is interesting as being very closely in harmony with the previous paper by Mr. A. R. Colquhoun. (See map, &c., p. 226, vol. 3):—

FORMOSA.

Before leaving England for the island of Formosa, in March, 1887, the writer endeavoured in vain to obtain some reliable information of the place; and it is to be hoped that the following short sketch may draw from some of the present residents of many years' standing much valuable knowledge they possess of this interesting country. The island, placed in the China Sea and separated from the mainland by the Formosa Straits, possesses poor natural harbours, but very little engineering would be required to make very good ones at the north and south ends on the western side. Taiwanfu, of which Anping is the port, Takao, Tamsui, and Kelung are the present ports used on the western, and there are none of any importance on the eastern side.

Taiwanfu, situated on an alluvial plain on the S.W. coast, lat. $22^{\circ} 59' 30''$ N., long. $120^{\circ} 12' 30''$ E., is said to contain 200,000 inhabitants, and is considered one of the best of Chinese cities. The English consul lives here. At Anping there are a few foreign houses, the offices of the imperial customs, and a club. The harbour affords good shelter during the N.E., but during the S.W. monsoon it is open and dangerous. Catamarans, on which a tub is placed, are the means of landing, and the bar is gradually making up and separating the canal which runs inland past Taiwanfu, on

which there is much junk traffic, and it is often very dangerous and difficult to cross. Large rollers continually beat on the low-lying sandy shore north and south of the entrance to the canal. The climate is not unhealthy, and during the winter months this place and Takao are very desirable places. Shooting is good and plentiful some distance from the ports. A telegraph cable connects Anping with Makung on the Pescadores Island, and land telegraphs exist between Anping and Takao. A passenger steamer runs from Amoy to Anping weekly. Sugar and camphor are the chief exports, but the trade is at present being greatly injured by prohibitive duties.

Tamsui is on the N.W. side of the island, lat. $25^{\circ} 11' N.$, and long. $121^{\circ} 27' 30'' E.$ Here a bar, allowing vessels of no more than 15ft. draught to enter at the best of times, stretches across the mouth of the river. The view of Tamsui from the sea is very pretty, as it lies on the side of the hill in the land-locked harbour. The Chinese town is extremely dirty and miserable, and probably contains 10,000 or 15,000 people. The foreign houses are apart, and have been built on the hillside near to and facing the sea. There is here an English consul, the imperial customs, a doctor, missionary houses, and two or three other European houses. Owing to the disturbing of the ground, composed of disintegrated granite, and an entire absence of sanitary arrangements, fever of a malarial kind exists; but the ill effects may be, to a great extent, avoided by occupying houses provided with sleeping-rooms raised some 15ft. above ground. There are two or three tennis lawns, a library at the customs, and very enjoyable walks may be taken through the lovely country surrounding Hobé. Twatutia is twelve miles up a shallow and difficult river, and is connected by steam launches and telegraph. This is where tea, the chief export from this end, is collected by the foreigners. The sales at Amoy for the year have been 455,000 boxes, and 13,000 boxes remained unsold. Four boxes = 1 picul, or 133½lb. Green tea is received from the Chinese growers, who have the sole control of production on the island. The foreigners are buyers only, and on receiving the tea it is "fired" by them, packed into chests, and shipped down to the port for shipment to Amoy, from whence it is transhipped to the States—this country taking the bulk of Formosa tea. There are also many Chinese exporters. A telegraph cable connects Tamsui with Foochoo on the mainland, and a land telegraph connects Twatutia with Kelung. Two steamers ply between the mainland and the island.

The native towns of Twatutia, Taipehfoo, and Banca, probably contain 100,000 people. The former and latter are typical Chinese places. The streets are narrow and filthily dirty. Hovels on either side shelter the foulest of pigs as well as the human occupants. The European hongs are built in amongst these hovels, but notwithstanding this Twatutia is considered healthier than Hobé. There are altogether six foreign hongs and one clubhouse, a dilapidated place of two rooms, one containing a billiard-table and the other very ancient papers and books. The balcony faces a very foul ditch, and a nest of hovels. An attempt is being made to make Taipehfoo into a model city. Walls were first erected, enclosing an area of about four or five acres. Now rows of small houses are being rapidly built, and as quickly occupied. Very good wide roads are being made, and the laying down of narrow-gauge railways, connecting with Kelung to the north, and Chang-wha to the south, is being done. It is proposed in time to connect Kelung with Takao, both by telegraphs and railways. The electric light will, within a few weeks, cast its rays upon this mixture of squalor and rush towards western civilisation. It is not to be thought that the customs of the Chinese change. They here, although to some extent following foreign notions as to size and arrangement of houses, roof them in their own manner, furnish the same way, and live in them as their forefathers lived. The writer merely states what he found, and does not venture to argue whether the Chinese are right or wrong.

A trip to the sulphur springs is one of the sights here. It is some three or four miles down the main river and Kelung Creek from Twatutia, and from the place of landing about two miles. We found the depression or crater about a quarter of a mile in circumference, and of lava, bleached by the sulphurous fumes from some eight or nine fissures, and which rise in jets of vapour many feet high. There were pools of water, some comparatively cool and others at boiling point. Several irregular-shaped shafts of about ten feet in depth have been sunk, and here the native workmen pick out the solid sulphur found in seams. It is then conveyed to iron pots, and melted. Foreign substances fall and solidify at the bottom, and the sulphur is scraped off the top, and passed on to another and similar pot, where it is melted again, and afterwards ladled into prismoidal-shaped moulds, where it becomes solid again, and then receives the Government marks, and is transported by men to the port. There seemed to be a great waste during this crude process. On the way other hot

sulphurous streams were passed, but there was no time nor could we learn the source of them. Although there may not be so many kinds of ferns on this island as on the mainland, yet here were found a large number of great beauty. Some parts of the hillsides were cleared for tea-plants, and the pine-apple is cultivated in great quantities. The plain was, like all other surfaces in China, whether plain or inclined, in a perfect state of cultivation.

The western side, from the ridge of mountains running almost from end to end of the island to the seacoast, is occupied by the Chinese, but the mountains and most of the eastern side, which is generally precipitous to the water's edge, is in the hands of aborigines, resembling Malays. They are independent, and have, so far with fair success, resisted the encroachments of the Chinese. Expeditions made by the latter are, from time to time, pushed back into the plain again. The aborigines speak of Europeans as brothers, and treat them fairly. Several Englishmen have been amongst them, and none that the writer is aware of have been injured. They form villages, defended by stockades, and although they indulge in tribal wars, they mutually agree and join to fight their common enemy. Occasional raids are made, when the Chinese, or those tribes which have been brought over to their side, and living in the country nearest to the mountains, suffer by the loss of cattle and life. There are roads by which travellers may go by chair from Kelung to Takao, or along nearly the whole length of this plain.

The plain near Twatutia is also in a high state of cultivation, as many as three crops of rice being raised in one year. The manner of cultivation, however disagreeable to European senses, is no worse here than in any other part of China. Sugar-cane is grown, and there are several sugar mills, where it is crushed by stone blocks turned by oxen, and the saccharine matter run off by bamboo tubes to iron pots, and there boiled and crystallised. Oranges of a fine quality are grown in great profusion, and indigo is extracted from the plant and some dyeing done. Food for Europeans has to be brought from the mainland, and the cost of living is consequently high. Eggs, fish, and fowls and vegetables may be procured, but it is not advisable to eat the latter. Nearly all the natives follow agricultural pursuits. Some of the women work as tea pickers, *i.e.*, they pick the dead leaves, stalks, &c., from the tea before it is packed. Nearly all (although not a rule elsewhere) the women have small feet, and are better and cleaner looking than the men. Europeans generally receive fair treatment from the peasantry, and are allowed to trample their crops without a word of complaint. At times, when passing through villages, foreigners are greeted as a foreign dog, baby, or devil, by the small boys, and some men more stupid than the rest; but, as a rule, they stare and good-naturedly laugh at (to them) their peculiar appearance.

Since roads have been made jin-rickshas have been brought over, but are gradually falling into a dirty and unsafe condition for want of supervision. There is but one carriage at present at Twatutia, but most European residents own ponies, and the country around affords good exercise.

The climate of Twatutia and Tamsui may not be considered a good one, but there are many worse. It is extremely hot during the summer months, and the mosquitoes are numerous and voracious. During spring and winter it is cool and agreeable, some months cold and rainy. The tops of the mountains are tipped with snow, and on the North Hill, near Tamsui, 2,800ft. high, snow has been seen. In the southern part of the island the climate is more equable. A mild winter, and summer not so very hot. Heavy rains fall from July to October. There is much rain at Kelung, and it is very hot there.

The religion is the same here as on the mainland, and generally speaking the duties are not severe, being the chin-chin of joss, by means of fire crackers and burning of papers for the particular benefit of deceased relations and the propitiation at certain seasons of gods having power to create material benefits.

Some conversation ensued as to the Emin Bey relief expedition.

A vote of thanks to Mr. O'Neill and Mr. Rippon, and to the Chairman, closed the proceedings.

SEVENTY-THIRD MEETING

Of this Society, held in the Garden of the Ferry Hotel, at Eastham, Cheshire, Saturday afternoon, at four o'clock, June 23rd, 1888, The Rev. S. A. STEINTHAL (vice-chairman of the Council) in the chair.

About 180 members and friends of the Society took the opportunity offered by the kind permission of the Directors, Engineer, and Contractor of the Ship Canal, to examine the works being carried on from Ellesmere Port to Eastham.

Councillor B. T. Leech, one of the auditors of the company, and Mr. Sellars, one of their officers, guided the company. The walk, which was somewhat trying, owing to the heat, was along the line of works; the excavations of the soil, the blasting of rock, the work of the steam-excavators, the swift running of the small steam engines, the arrangements for lighting the work at night, the so-called Roman Road which had been bared in one portion of the works, the line of the canal embankment in the river, the comfortable, clean, and pretty dwellings of the workmen, numbering in this section about 1,800, and the evidence of great skill in laying out the work, and its orderly progress, gave the members great pleasure to observe, and all were thoroughly satisfied, after the inspection, with the character and progress of the works. About thirty of the party were from Burnley.

Mr. GEORGE HARKER moved that the very hearty thanks of the Society be given to the Ship Canal Company, Mr. Leader Williams, Mr. Walker the contractor, Mr. Marshall Stevens, Mr. Councillor Leech, Mr. Sellars, and Mr. Thompson, for their kindness and help, in various ways, to make the journey agreeable and profitable. Mr. T. Lloyd, secretary of the Burnley Literary Club, seconded the motion, which was heartily supported by Messrs. Booth, Booker, and Davies, and carried unanimously.

Mr. Thompson, of the Ferry Hotel, had placed one of the best boats on the station at the service of the members. Lunch was supplied on the boat. Tea and dinner were supplied at the hotel on the arrival of the members, and the whole hotel and grounds placed at their service. The result was a most enjoyable excursion, to which Mr. Thompson's services very materially contributed and were very heartily acknowledged.

About twenty members sat down to dinner, the Rev. S. A. Steinthal at the head of the table, and Mr. George Harker in the vice-chair. After the usual loyal toasts, proposed by the Chairman, the following were proposed: "The success of the Manchester Geographical Society," by Mr. Prefitt, of Boston, U.S.A.; "The Manchester Ship Canal," by Mr. George Harker; and "The Panama Canal and Mons. de Lesseps," by M. Le Roux, Vice-Consul for France, and "The Chairman," concluded the sitting.

The members returned home very comfortably, in reserved carriages, arriving in Manchester about nine o'clock.

SEVENTY-FOURTH MEETING

Of the Society, held on Saturday, June 30th, 1888. The members assembled at Harpurhey, visited Booth Hall, and rambled through a part of Boggart Hole Clough, and were finally conducted, by Mr. Ward, to the Simpson Memorial Institute, Moston, where tea had been provided.

After tea the members examined the beautiful building. A meeting was held in the large hall, Mr. WARD in the chair, when some account of the Institute and a description of the building was given.

DESCRIPTION OF THE BUILDING.*

The Simpson Memorial School is a rectangular block of buildings, two storeys high. The design of the interior exhibits no exuberant ornament of any kind. Any artistic merit it may possess in its mass is obtained by careful grouping of its several components, good detail of mouldings, and suitability and colour of material. The walls are faced with a hard-pressed brick of dark red colour. The window mullions,

* Mr. J. G. Sankey, B.A., who has furnished this little note, has also kindly supplied an etching of the large room of the building.

quoins, and mouldings generally are in warm red Ruabon terra cotta. The roof is covered with Ruabon tiles of the well-known strawberry tint. The interior of the upper storey consists of a large lecture hall, with retiring-rooms, and all necessary conveniences in connection therewith. The fittings of this hall are in Dantzic oak, finished with egg-shell gloss. The oakwork of the inner shell of the roof is left clear from the tool, the effect of which, in the course of years, as the oak darkens on the tone, should be very pleasing. The warming, thorough ventilation, and sanitary arrangements of the building have been carefully considered, and have proved in every respect adequate. The ground floor of the block contains a spacious gymnasium, a galleried lecture-room, and a reading-room and library combined. The latter-mentioned room is made as snug and private as possible, by disposing its area into deeply recessed and comfortably-seated bays.

THE SIMPSON MEMORIAL INSTITUTE.

By MR. J. WARD.

It makes a gift all the more enjoyable if we can think of the giver with pleasure ; and it heightens the pleasure still more if the gift has been given with grace and without hope of reward. It is a misfortune when donors of lasting institutions are allowed to be lost in obscurity, and nothing but the gift remains to bless posterity. If we keep the memories of those who bless society green, it may be the means of stimulating others who are able to follow in the same course.

In as few words as we are able we will give a sketch of the founder of the Simpson Memorial, and also of the foundation itself. It will be necessary to mention her father, for through him came the money that enabled her to found and endow the school. When a young man, he was a hand-loom silk weaver, and lived in a small cottage, that still stands, not many yards from the handsome schools now under consideration. He was a fine-looking man, of good address, and an excellent workman. Messrs. Taylor, silk manufacturers, of Newton Heath, came to be in want of an over-looker, and William Simpson, one of their own weavers (father of Mrs. Fay to be), applied for the situation and obtained it. No one knew better when he saw good work, and he soon proved himself to be a man of good business ability ; and as a consequence, he rapidly rose in their estimation, till at length he secured an interest in the concern. Being of economical habits, he accumulated money fast, and made good investments in railway shares. At the time of his death (1866), he had got together a fortune of nearly £40,000, out at good and safe interest. The founder of the school was the only child he had, and he left her £2,000 a year, to be taken from the interest of capital invested, and should that fail she was to make it up from capital. From little more than the interest, during a period of twenty years, she saved the money that enabled her to found the Simpson Memorial, besides leaving a number of small legacies, ranging from £20 to £200, and one of many thousands.

So far as to how the money was accumulated. And now a few words as to how it is being used at this, our little palace for the people of Moston. The building is an admirable structure, having already cost about £4,500. After this has been spent we have still invested funds that will bring us in about £350 per annum. This is our working capital, besides the fees we receive from members.

The work we are now doing we will briefly state. We have a class, which is numerously attended, for cooking, and is taught by one of the best teachers we can procure. The appreciation shown for this is seen in the unflinching good attendance and the lively interest shown in all that is done. We have also a class for dress-making on scientific principles. The same remarks can be made of this as were made of the cooking class, and with equal results. We have classes for drawing and joinery, which are well taught and well attended as the others. In fact it would be invidious to say which is best. We have also a splendid gymnasium, which is used four nights in the week—two nights for girls and young women, and two nights for boys and young men. We have a good master, and he gets as many pupils as the capacity of the room will admit.

Besides these classes, we have a good reading-room and library, in which are put daily all the local papers, and several well-known serials. Add to these a well-selected library of choice books.

Besides the work so far enumerated, we have arranged for a course of University extension lectures, to be given by Professor Milnes Marshall, of Victoria University. Other work we have under consideration ; but whatever we do, it is our intention to do it in the best way we can.

As far as is practicable we shall gather tone from the Victoria University, from the professors of which we have had already shown us no little of interest and consideration. Dr. Ward, of this University, laid the memorial stone, and delivered an admirable address, which we have had printed. Professor Boyd Dawkins attended, and gave the inaugural address; and has since invited the trustees, committee, and friends to the College, where he entertained about 150 of us in true style, and gave us two short addresses—one on the large boulder stone that adorns the quadrangle, and the other in the museum on geology. This is briefly what has been done, what we are doing, and what we mean to do in the future.

A reading, prepared by Mr. GEORGE MILNER, being a description of the Clough and Moston by him,* was read by the SECRETARY in Mr. Milner's unavoidable absence.

THE GLEN, MOSTON.

The face of the country here, though undulating and far from monotonous when considered in detail, would be broadly described as flat, the base of the hills being five or six miles away. This comparatively level surface, however, is frequently indented by picturesque and winding ravines, which have been gradually scooped out by the slow agency of winter floods. What we call The Glen is one of the smaller of these ravines. Its shape is irregular. There is a main trunk along which the principal stream flows, and there are besides two or three branching hollows, each of which has its own water-course. One of these takes its rise within our own garden-enclosure, and is known to us as The Dell. The water from the pond flows through it, and it is here that the boys make mimic water-wheels. In spring the slopes of it are blue with hyacinths, and there are some fine ferns about the roots of the tall ash-trees which rise on each side. At the top of the Dell there is an old wooden dove-cage mounted on a tree-stump. We have put it there as a shelter or rendezvous for the birds, if they choose to use it; and as the bars are wide apart they can pass in and out as they wish. Just now it is covered with branches, which, in pruning, have been cut from the rose-bushes and placed here so that the birds might pluck the scarlet hips which are still hanging upon them. Outside the fence the Dell has been filled up and is crossed by a public road, under which the water runs, continuing its course down into the Glen. Standing in the road you may look along the narrow ravine and see a picture of considerable beauty. The ash-trees which begin in our garden grow more thickly here. The stems, having to climb towards the light, are long and bare, and lean towards each other so as to cross near the summit. In this way they make a vista down which the eye travels with the same pleasure that it would along an aisle of Gothic arches.

The Glen is always a surprise to strangers. If one should come to it in the depth of summer and find himself, not on the outskirts, but in the very midst, the exclamation which would be sure to rise to his lips would be—"How thick the foliage—this might be thirty miles away from any town!" Truth to tell, it is an oasis. The city is ever stealing nearer and nearer upon it; and is, in fact, rapidly making a sterile wilderness of the surrounding fields. This makes the place more precious—we know that it will soon be gone, and when we first catch sight of its leafy edge, as we return home in the evening, we say—"This is the happy valley in whose precincts we shall find once more peace and repose."

The Glen is not large. To walk round it following its irregular margin would be a journey perhaps of some three-quarters of a mile. In doing this we should start from our own gates; and, descending a steep lane, pass some picturesque cottages. Ascending again, one comes upon an old house, in front of which may still be seen the stone mounting-steps, where the stirrup-cup may often have been tossed off; and which tell their own tale of riders long dead. Here, standing under a gnarled and twisted elm, at the edge of the declivity, we look down on the grey roofs of the cottages, and

* See "Country Pleasures," pp. 238, 257, 264, and 272.

into the Glen itself. At this point, if we have permission, we may most easily descend into it. In the cloudy afternoon of an October day the place is very still and not unlovely, although the summer is gone, and although even the return of summer will not bring back the beauty which we have known of old. When we reach the bottom and wander along the grassy path by the brook-side, we see how exquisite are the folding and over-lapping lines of the green slopes as they fall back one behind another. This is the great beauty of the Glen. The ridges all round are set with trees which show themselves against the sky. There is the beech, the chestnut, the sycamore, the silver birch, and one purple beech, which we have watched for nearly twenty years, putting on, season after season, its glorious and ever-changing apparel of green, of light brown, of purple, and lastly of brilliant red.

By the path there are still in flower the daisy, the dandelion, the shepherd's purse, and the scabious or devil's-bit; and among the long grass overhanging the brook there is one tuft of red-campion, a cheerful thing for October. In the bottom of the Glen there are two noble trees which rise above all the rest—a lime and an ash. Both of them might be sketched as characteristic of their species. The bole of the lime is, as usual, straight and well-formed; and many a time have I watched for hours the gracefully curving branches move up and down in the wind, with that feathery and finger-like motion which is so peculiar to them—

“The large lime feathers low,
The lime a summer home of murmurous wings.”

The ash grows against a bank; and on one side its roots, green and scaly, are half-exposed. A few leaves still hang on the spreading and shapely boughs, and a bramble climbs about the lower part of the trunk. Just at the foot there are one or two roots of the autumn-crocus remaining in flower: every year they come up in the same place. Until quite recently a pair of magpies built in this ash-tree on each succeeding spring. The leaves were generally so thick that we seldom saw the nest until October; but the birds were seen every day. They were very regular in their habits, and might be observed flying together up and down the Glen at a certain hour every morning. It is not often that these birds are to be found so near a large town. Two other trees are noticeable, a chestnut and a willow. The chestnut, being low down, and protected from the wind, has retained its leaves; and as these are touched with the fieriest tints of autumn it presents a splendid sight. They will all have fallen, however, in a day or two. As I look at it I think of those fantastic lines by William Allingham:—

“Bright yellow, red, and orange,
The leaves come down in hosts;
The trees are Indian princes,
But soon they'll turn to ghosts;
The leathery pears and apples
Hang russet on the bough—
It's Autumn, Autumn, Autumn late,
'Twill soon be Winter now.”

The willow has been curiously warped in its youth, and grows right across the brook like a bridge, from one side to the other, some of the branches turning towards the sky and others downwards towards the water. It is such a willow as that on whose “pendant boughs” the poor Ophelia hung her “coronet weeds:”—

“A willow grows aslant a brook,
That shows his hoar leaves in the glassy stream.”

The Glen is, as might be expected, a famous place for birds, though they are, of course, becoming more rare. The cuckoo used to be a regular visitant; the wrens build in the bank near the willow mentioned above; the blackbird is common; but

the most frequent of all is the throstle. Indeed, my old friend, the stalwart author of the "Passages in the Life of a Radical," once told me, as we were sitting together one summer's day on these very slopes, that in his boyhood the place was always known as "Throstle Glen."

BOGGART HOLE CLOUGH.

The Clough is a kind of larger Glen—a *kloof* or cleft in the ground, and lying below the general level of the country. It is wilder than the Glen; but it has suffered much during the last few years, being less carefully preserved. If we start from our own garden and strike straight across the fields, the distance to the nearest edge of the Clough would be a little over half a mile. Speaking roughly, it runs from north-east to west, and its length is about a mile and a half. It is partly in our own parish, that of Moston, and partly in the ancient township of Blackley.

In a Survey taken in 1322, the fifteenth year of Edward II., it is said that—"The park of Blakelegh is worth in pannage, eyrie of eagles, herons and hawks, honey-bees, mineral earths, ashes, and other issues, fifty-three shillings and fourpence. The vesture of oaks, with the whole coverture, is worth 200 marks (£133 6s. 8d.) in the gross. It contains seven miles in circumference, together with two deer-leaps of the king's grant."

One of these "deer-leaps" was the Clough of which we are speaking. The most accessible mode of entry is from the high road which runs through Rochdale into the county of York. About half a mile south of the village of Blackley, you come upon a sharp descent, down which the country wagons, returning home, always rumble with the brake on their wheels. It is a picturesque bit of road—picturesque, but difficult. In severe winters when the ground was slippery I have seen it quite impassable. Once I remember the snow had to be cleared away by gangs of men, and was piled up on each side to the height of ten or twelve feet. Just at this point, where there is a populous rookery on the left hand, a lane on the right runs eastward into the Clough. It looks like a private way, and is very tempting to the passer-by. On one side there is a green hollow, on the other a steep bank; and, as the trees, though not large, are thickly grown, you get a winding avenue, which in the summer-time is pleasantly chequered with light and shade.

In going from our own house, however, we cross the fields and enter by another way, which, leading between high banks of sand, plunges at once into the midst of the ravine. On this side of the Clough we pass the ancient house which is known as Hough Hall. It is now surrounded by modern dwellings, but it still retains something of its ancient appearance, having pointed gables and a black-and-white timbered front. In the reign of Henry VIII. it was the residence of George Halgh, gentleman, whose widow married Sir John Byrom, of the adjoining parish of Clayton. Sir John was probably an ancestor of the poet, and seems to have anticipated the irregularities, if not the genius, of his illustrious descendant.

Standing now in the Clough-Bottom, by the edge of a little stream, one sees how wild and beautiful the place has once been. The ground rises sharply on every side, and the brook, winding and turning about, makes many a little gorge and headland. All the elements of the picturesque are present; but the scene has been rudely dealt with by man; and the loose nature of the soil on the steep banks has caused most of the finest trees to fall.

Our recollections of the Clough go back to our earliest years. In boyhood it was the home of almost all our romance. Here the eternal friendships of adolescence were made; and here, too, those more tender attachments—long, long forgotten—had their beginnings. It was in the Clough, also, that we first learned to feel that reverence

and love for all the changing aspects of nature, whether great or small, which have since been able to lead us on from "joy to joy," and which have helped to form in us that—

"Cheerful faith, that all which we behold
Is full of blessings."

We came here for our sunsets and sunrises—nowhere could they be better seen—and not unfrequently, for the sake of snatching a fearful pleasure, we have ventured into the haunted recesses of the Clough in the depth of midnight. In spring the banks were then covered with the anemone, the hyacinth, and the stellaria: in summer, when the ground was thick with ferns, the honeysuckle went gadding about among the wild roses: in the autumn we gathered blackberries—the nuts were gone even in my time—and in winter, when the old-fashioned weather was on, and the brook could be heard tinkling under the ice, the snow pictures were finer here than anywhere else. Before we had ever seen a mountain we simulated Alpine terrors among the sandy scours, making believe in dizzy precipices over which we were accustomed to hang suspended from some projecting branch; and, as for cataracts, we made them ourselves by damming up the stream, where it was narrowest, with stones and the roots of trees.

Westward from this point the Clough widens into a green glade; and if we were to follow the path which meanders along the turf, we should come to a farmhouse standing at the end of the avenue of trees already mentioned. Samuel Bamford, writing more than thirty years ago, describes the glade, and makes it the scene of a wild story, intended to illustrate the superstitious belief, common in Lancashire, that whoever is able to gather the seed of the St. John's fern, at midnight on the eve of St. John's Day, with certain cabalistic ceremonies, will have power to command the affections of an unwilling damsel. "About half-way up this kloof is an open cleared space of green and short sward; it is probably two hundred yards in length, by sixty in width; and passing along it from Blackley, a group of fine oaks appears on a slight eminence, a little to the left. This part of the grove was, at the time we are concerned with, much more crowded with underwood than at present. The bushes were then close and strong; fine sprouts of 'yerth groon' hazel and ash were common as nuts; whilst a thick bush of bramble, wild rose, and holly, gave the spot the appearance of a place inclosed and set apart for mysterious concealment. Intermingled with these almost impervious barriers were tufts of tall green fern, curling and bending gracefully; and a little separate from them, and nearer the old oaks, might be observed a few fern clumps of a singular appearance; of a paler green than the others—with a flatter and a broader leaf—sticking up, rigid and expanded, like something stark with mute terror. These were 'Saint John's fern.'"

Turning eastward, the Clough narrows, and the path becomes difficult, being sometimes obstructed by fallen trees, and sometimes breaking off altogether in consequence of a slip in the land. It is best, therefore, to keep by the brookside crossing and re-crossing from time to time. In a little while a lofty and picturesque knoll rises in front of you, and seems to bar further progress. Here, indeed, what is usually known as The Clough comes to an end; but by a little scrambling you may get into a contributory dingle which runs on still farther for about half a mile, and finally loses itself in the level fields. In this dingle there are yet some of the rarer wild flowers to be found; and here, in the long summer evenings, far away from intruders and all the noise of the town, you may often come across one of those Lancashire working botanists—quiet and unobtrusive creatures—who, like the plants they seek, are, it is to be feared, becoming every year increasingly uncommon.

Returning from the dingle we climb the knoll; and here, on the summit, and

curiously near the precipitous edge, is the lonely farmhouse which gives the place its name—Boggart Hole Clough, the Boggart Clough in fact, “hole” and “clough” being one of those duplications so common in all languages. The legend attached to this house will be found under the title of “The Bar-Gaist” in the first volume of Roby’s “Traditions of Lancashire.” Although appearing with Roby’s own work it was really written by Crofton Croker, the well-known author of “The Fairy Legends.” The salient points of the story are concisely put in Tennyson’s “Walking to the Mail” :—

“His house, for so they say,
Was haunted with a jolly ghost, that shook
The curtains, whined in lobbies, tapt at doors,
And rummaged like a rat : no servant stay’d :
The farmer vext packs up his beds and chairs,
And all his household stuff ; and with his boy
Betwixt his knees, his wife upon the tilt,
Sets out, and meets a friend who hails him, ‘What !
You’re flitting !’ ‘Yes, we’re flitting,’ says the ghost,
(For they had pack’d the thing among the beds,)
‘Oh, well,’ says he, ‘your flitting with us too—
Jack, turn the horses’ heads and home again.’”

The farmer who was the victim of the pranks of this Robin Goodfellow, this “drudging goblin” and “lubber fiend,” as Milton puts it, has been long gone ; and his successors are gone too, for the house is now untenanted save by the rats and the birds, and is fast falling into decay. Its antiquity is proved by the nature of the building, for the walls, in some parts at least, are of what was called “rubble and daub”—loose stones covered with plaster and intermingled with beams of wood. In the grey November evening, with the mist beginning to fill the Clough and already lying along the fields, it looks, as a haunted house should, both weird and uncanny. The fences are thrown down ; the trim garden has become a wilderness ; all signs of life have disappeared, the windows are blocked with wood, the doors are made fast with nails, the hearth is cold, and the fire will never be kindled upon it again. The Bar-Gaist was a homely sprite ; and, as this is a home no longer, he is gone too. By climbing we manage to look into one of the deserted and empty chambers. The walls are ragged, the narrow stairs are broken, the roof lets in the sky, and we feel that even the presence of a goblin would make the place more cheerful than it now is.

THE BOOTH HALL.

Leaving the Clough, and crossing a few fields, we come to Booth Hall, an old mansion which bears the date of 1640. Humphrey Booth, the builder of the house, founded the Trinity Church in Salford, and left sundry legacies “to the poor for ever.” That quaint chronicler, Hollingworth, says of him that, “Being in great weakness, he earnestly desired that he might live to see the chapel finished, which he did ; but immediately after the solemn dedication of it by the Bi-shop of Chester he more apparently weakened ; then he earnestly begged that he might partake of the Lord’s Supper there, and then he would not wish to live longer. It pleased God to revive him in such a measure as that he was able to go to the chapel constantly till he was partaker of the Supper (which could not be done of some months after the consecration) in the chapel, and was never able to go forth after, nor scarce to get home. He was a man just in his trading, generous in entertainment of any gentlemen of quality that came to the town, though mere strangers to him ; bountiful to the Church and poor ; and faithful to his friend.”

The lights are already glimmering in the windows of Booth Hall when we turn homeward. Our nearest way is through a branch of Boggart-Hole locally known as

Oliver's Clough. This is really the finest part of the whole ravine, and has suffered least. The trees are many of them noble in their proportions; and, as the path is carried along the high ground, you look through the tree trunks to the brook which runs at a great depth below. When we reach the open glade the twilight has already fallen, and we can hear the birds fluttering low among the trees. At the entrance to the Clough we meet a group of children who are making for home. They huddle together, and hurry past with scared faces. Probably they are still believers in the existence of the Boggart.

THE WHITE MOSS.

In order to give some idea of the neighbouring country, and having sketched the Glen and the Clough, I now come to another characteristic feature of the place—The Moss. In ancient times the parish was probably divided between open moss-land and thick woods of oak. From the former it took its name. In the first year of the fourteenth century it is spoken of as a "hamell," or hamlet of the manor of Manchester, and is on some account exempted from the payment of certain tribute to Thomas de Grelle, the lord of the manor. The proper designation of that which we speak of familiarly as "The Moss" is the "Whytemosse." It is so called in a survey taken in 1322.

To reach the Moss we go due north by sundry devious lanes and field-paths. After we leave Moston House there are but few trees; probably most of them were cut down in the early part of the present century. We get no rich landscape, therefore; no deep pasture or umbrageous wood; and no wealthy and well-ordered farms. Yet the country is picturesque because it is broken. Even in its bareness we find, as upon the mountain-side, that quality which braces at once both mind and body. The land is, in fact, like the hardy stock, now passing away, but which for many centuries has lived upon it—a rude, stern, sagacious race; reserved, yet full of mother-wit and overcharged with rough humour.

We turn first by what we know as the Lily Lane. On one side is a pond where I remember to have seen the lilies growing, and where, when a boy, I have many a time plunged into the water to capture them. Within the last few days snipe have been shot near this pond. Looking back we see that we are upon high ground, for a great part of the city is visible some three or four miles away. Standing here we look south-west, and on a clear summer's evening we have proof of what a glorious thing a great city may become when the sun is sinking behind it. In the early morning, before the smoke has risen, the hills are visible all round from Holcolme to Kinder Scout and Odermann; nor is the scene less attractive to me if I steal out here after dark. Then I look abroad over what is apparently a vast and trackless waste, at the farther edge of which strange lights glimmer and are reflected in the sky.

As we leave the lane and pass into the fields, we catch a sight of Lightbowne Hall. It has been much modernised; but some of the old mullions remain, and there is still untouched a fine room panelled in oak from floor to ceiling. A local tradition relates that when the Young Pretender was making his retreat from Derby, one of his officers, being at Lightbowne, was surprised. He attempted to secrete himself in the angle of a large chimney which formerly stood by one of the gables. He was discovered, however, by the Hanoverians and shot dead in his hiding-place.

The path now winds through a few fields, usually sown with grain, and comes out into an old road, by which, if we were to follow it, we might reach the moorland hills.

The Moss is now in front of us, and we are standing at Shackerley Green. Shackerley is a corruption of Shacklock, that being the name of an ancient family

whose mansion was on the Green in the reign of Henry VIII. At a very short distance are the halls of Great and Little Nuthurst. At Nuthurst lived the Chaddertons, the Chethams, and the Sandfords. One of the Sandfords was Bishop of Lincoln in 1595. The Green is the place where Moston used to disport itself. Here in winter the great bonfires were made, and in summer the rushbearings were held. I have often seen the tall rush-cart, as it was called, swaggering along the rough-paven road preceded by its band of morrice-dancers. Bamford gives in his "Early Days" the simple song which was usually sung on these occasions :—

"My new shoon they are so good,
I could dance Morris if I would;
And if hat and sark be drest,
I will dance Morris with the best."

The rush-cart festival is generally connected in Lancashire with the dedication of the parish church, and had its origin, no doubt, in the practice of strewing the floor of the sacred edifice with new rushes for the winter; but in other counties the ceremony seems to have accompanied the harvest home, the cart being crowned with sheaves of corn instead of with rushes. Allowing for this difference, Herrick's description of the hock-cart would answer for our ceremony of Rushbearing :—

"Crown'd with the ears of corn, now come,
And, to the pipe, sing harvest home.
Come forth, my lord, and see the cart
Drest up with all the country art.
See, here a maunkin, there a sheet,
As spotless pure as it is sweet;
The horses, mares, and frisking fillies,
Clad all in linen white as lilies.
The harvest swaines and wenches bound
For joy, to see the hock-cart crown'd."

Considering how near we are to a great town the country hereabouts is curiously primitive and secluded. The scattered farms are mostly small. Each of them will be found to have about four acres of land attached to it, an ancient law forbidding a house to be erected on a smaller plot of ground unless it was intended for the cote or cottage of a forester, a herdsman, or a miner. The buildings also very closely resemble each other, including, in nearly every case, a farmstead and a loom-house. The meaning of this is that in winter, when rural occupations were not pressing, the long nights were occupied in the spinning and weaving of wool.

The loneliness and isolation of the district, resulting from its being far removed from any frequented highroad, have made it quite a stronghold of ancient customs and superstitions. Every lane and dingle and brookside had its own particular ghost or boggart. Phantom huntsmen were seen in the fields at twilight; and anyone who would rise early enough might find the fairy-rings on the grass. I knew an old man of over eighty who durst not go alone after dark over a certain bridge, because he believed that underneath its arch a whole company of water-sprites lurked together. In the neighbouring Clough a strange boggart known as Nut-Nan flitted with a shrill scream among the hazel bushes; and every little pond and marl-pit was haunted by a spirit vaguely called "Pit-mother," which hid itself in the sedges and drew into the water little children as they passed by. The following prayer is still extant in the locality, and until quite recently it was actually used every night by an old crone before she retired to rest. The dialect of the prayer is that which is common in the district :—

"Fro' o' mak o' witches an' wizards an' weasel-skins,
An' o' mak o' faw black things 'ut creepen up dyetches
Wi' great lung tails—may the Lord deliver us!"

A hundred years ago a woman living in a cottage on the edge of the Moss being angry with her son, who was idle and asleep at his loom, struck him so violent a blow in her anger that he never woke, but slipped from his seat dead on to the floor of the loom-house. Seeing what she had done, the poor mother went out and drowned herself in an adjoining pond. Her ghost, of course, became the terror of the hamlet. If the lights burned blue, "Old Bess" was breathing on them; if the rain streamed on the leaded windows, she was bringing water from the pond; and if the doors rattled, poor Bess wanted shelter. At length a parson was brought to lay the perturbed spirit—and he did it, using a formula which indicated that the spell should last for so long as a certain holly by the edge of the pond should remain green. Two years ago the old holly had entirely withered, and people are now to be found who believe that Bess is abroad once more.

Besides these terrible spirits there are the harmless fairies, or "little men" as they are familiarly called. Of these there is a pleasant story current, and implicitly believed. A man, who was ploughing at nightfall, thought he saw something strange at the end of one of his furrows. He stopped his horses, and beheld three little men, dressed in green, and wearing cock's feathers in their hats, dancing on the loam. Upon this he hid himself, and then the green men brought out a small *bake-spittle*—a wooden shovel for turning cakes in the oven—and laying it on the ground went away. When the ploughman approached he found it was broken; whereupon he mended it with some nails he had in his pocket, and then went on with his ploughing. When he came to the end of another furrow he found the spittle had gone, and in place was a tiny vessel no bigger than a lady's thimble. Although so small it was shaped and coloured exactly like the brown earthenware jug out of which the ploughman usually drank his ale, and the foam was curling over the edge as if it had been freshly drawn from some fairy barrel. He took it up and drank; and lo! it lasted as long as if it had been a good gallon or more. He had tasted the fairy-brewing, and ever afterwards no man could equal him in ploughing, and all his life he prospered.

That part of the Moss which we have now reached is still unreclaimed, and we walk by the edge of deep trenches, and past big stacks of black peat. The wind is like that which blows from off the sea; and, as the night is coming on, the distance might easily be mistaken for a waste of waters. The frequent cry of the lapwing and a light moving up and down, as in a boat, help the illusion. Now, in the winter, and at dusk, it is a wild and lonely scene, and we hasten towards the more frequented road. In the spring, however, no place is more cheerful, for then one can hear more larks singing and soaring at one time than can be heard almost anywhere else; and in summer, when the hay harvest is just over, we are accustomed to get much pleasant festivity of the rural sort at an old farm which lies near to where a stream flows off the Moss and down into the haunted Clough.

The rest of the evening was spent in listening to music and short speeches by some of the Moston friends and others.

Very hearty votes of thanks to the leaders of the party, to Mr. Milner, Mr. Ward, Mr. Sankey, and others, who had so pleasantly supplied a lesson in local geography, and to the members who had generously supplied the refreshments, were proposed and carried unanimously; and a vote of thanks to the Chairman closed the meeting at about ten o'clock.

CORRESPONDENCE.

JOURNEY TO THE MUATA YANVO COUNTRY, CENTRAL AFRICA.

Lisbon Geographical Society, Lisbon, June 16th, 1888.

Sir, and dear Confrère,—Our confrères, Messrs. Major H. de Carvalho, Captains Almeida and S. Marques, chiefs of an expedition sent out by our Government in 1884 to Lunda, the ancient state of the Muata Yanvo, have recently returned to Lisbon. In consequence, I have the honour to give you, in the name of the Lisbon Geographical Society, a succinct description of the performances of the exploring party.

In accordance with suggestions from this Society, the Portuguese Government accepted an offer made by our confrère, Major Carvalho, and determined to send out a fresh expedition to the Muata Yanvo state (Central Africa). This party had instructions to study the present condition of said state, to establish posts of protection, and to collect all possible information on the geographical, ethnological, zoological, and botanical features of the various regions visited.

The expedition was definitely constituted, under the command of Major Carvalho assisted by the two other officers, at Malange, a town of our province of Angola. The position of this town enables it to entertain most easy and frequent intercourse with peoples of the ancient states of Central Africa. At this town our explorers met M. Wissmann on his arrival, July 6th, 1884. This gentleman was endeavouring to organise a body of porters for his expedition that year. The Portuguese expedition began its scientific observations by installing its first post at the *nbondos* of the *Ndála Quinguangua*. On the 31st October the party crossed the *Cuango*, installed a second post at *Cafuxi* (*Ndála Quissua*), a third at *Mbango* (left bank of the *Lui*), and finally placed the fourth at *Mona Samba* (*Capenda Camulémba*), under $8^{\circ} 27' 49''$ latitude S., and $17^{\circ} 32' 40''$ longitude E. of Greenwich. From here the expedition, striking E.N.E., and passing through the midst of populations of *Lundas* and *Quiocos*, reached *Casísa*, where the post of *Cidade do Porto* was established; then the party journeyed towards N.E. to *Cahungula* (bank of the *Lóvuá*), where it fixed the post *Luciano Cordeiro*, under $7^{\circ} 26', 14''$ lat. S., and $20^{\circ} 16'$ long. E.

The expedition passed the *Cxinbango* close to the river *Cxiumbue*, where another post was placed. The explorers were obliged to remain here a little while to determine disputes which had existed for a long time between the *Lundas*, the *Quiocos*, the *Bengalas*, and the *Matabas*, as these peoples had recourse to the equitable judgment of the representative of *Muene Puto* (King of Portugal).

The sixth post was installed towards the S.E. and on the banks of the *Catxime*, an affluent of the *Luémbe*. The *Mataba* territory begins here. This is an important region, the most populous of the *Lunda*, whose governors had closed the ports of the rivers *Luémbe* and *Cassai* on account of the general agitation amongst the different peoples, and of the invasions of the *Quiocos*. For the time being the old state had no chief; but the heir of the last *Muata Yanvo* had come and joined the expedition, which he accompanied to *Musumba*, where he took over the government of the country.

The commander of the expedition, recognising the weakness wrought on his party by sickness and want of ordinary necessities, ordered the majority of the explorers to retire upon *Malange*. He, however, pursued his course with six porters and an escort of 14 men.

Our confrère took under his protection at the passage of the Cassai, a quantity of people come from Musumba to salute and welcome their new Muata, who had decided to adjourn his entry into the capital until the rain period. Then Major Carvalho passed in rapid succession the Cassia, the Lusanseji, the Caunguéji, the Lulua, the Luisa, and many of their affluents, camping at the Luambata, where stood, in times gone by, the best musumba of the Muata Yanvos. In this place there was a colony of Portuguese-Africans, who were desirous of returning to Angola, on account of the great sufferings they had endured during the last wars. Finally, M. Carvalho installed his last post at a place twelve kilometres beyond the Calanhi, where stood the ruins of another musumba; and on the 13th June, 1887, began his homeward journey, forced thereto by his own sickness and that of his party, who were in want of provisions, and were afflicted with smallpox.

The observations made and specimens collected by this expedition are very numerous; and the geographical and ethnological information acquired is truly interesting.

Below I give succinctly the bearings taken along the route:—

Place.	Latitudes.	Longitudes, E.	Altitudes. Metres.
Malange	9° 32' 10"	16° 15' 0"	1154
Cafuxi (Ndála Quissua)	9° 0' 10"	16° 42' 1"	832
Mbango (left bank of the Lui)	8° 37' 48"	17° 6' 30"	701
Mona Samba (left bank of the Cuango) ...	8° 27' 49"	17° 32' 40"	765
Casasa (right bank of the Cuilo)	8° 9' 18"	19° 39' 20"	1083
Cahungula (right bank of the Lóvua) ...	7° 26' 14"	20° 16' 0"	822
Na Banza (left bank of the Cxiciápa)	7° 18' 10"	20° 29' 27"	706
Cxibango (right bank of the Cxiumbue)...	7° 38' 22"	21° 17' 5"	758
Cahungula of Mataba	8° 20' 4"	21° 31' 18"	877
Cassai (port)	8° 34' 12"	21° 56' 12"	862
Caunguéji (right bank).....	8° 30' 18"	22° 22' 20"	1009
Lulua (right bank)	8° 27' 26"	22° 30' 30"	996
Luisa (left bank).....	8° 25' 12"	22° 46' 44"	1023
Luambáta (extinct musumba).....	8° 22' 28"	23° 7' 36"	1045
Musumba (left bank of the Calanhi)	8° 21' 12"	23° 10' 54"	979

Accept, dear sir and confrère, the assurance of my highest consideration.

The Perpetual Secretary,

LUCIANO CORDEIRO.

MARITIME LIGHTING AND BUOYAGE.

The Geographical Society of Lisbon, April 20th, 1888.

To the President of the Manchester Geographical Society.

Sir,—The Geographical Society of Lisbon having approved the subjoined report of its commission on maritime lighting and buoyage, favouring the adoption of an international uniform system of buoys, bells, and other signals for use in navigation, now solicits, as per the first conclusion of said report, the support and high influence of the noble institution of which you are the honoured president, towards realising the idea of an international convention, having, as object, the unification of all maritime services; this being the subject of proposition and report already mentioned.

We have every reason to hope that our suggestion will be as kindly received in your midst as were others, such as the convention on the metre, simultaneous

meteorological observations, protection of submarine cables, electric units, universal meridian, and many other like proposals.

Our society is well aware that the proposition submitted to your consideration will touch the susceptibilities of nations possessing already a national system of maritime signalling used by vessels entering their ports, and as a consequence, expect to see difficulties placed in the way. But the benefits to be conferred by the adoption of a unique international system would be so enormously great, that we doubt not we shall obtain the approval of your institution and that of other scientific and maritime societies for our initiative efforts. Our first object will be to obtain the support and acquiescence of those who are now, or may be later on, interested in the question; and to conduct a propaganda which will enable all scientific and maritime corporations to obtain from their respective governments the means of bringing about an international conference, which would prepare work to be submitted to an official congress of maritime nations.

We do not think it necessary to produce more arguments in favour of a question which means great and immediate benefits to navigation and maritime commerce, but again beg your careful attention to the circular and report of our commission. We feel certain that the institution over which you preside will study the matter with care, and will take sides with our society, which, too modest to desire to place itself above others, is nevertheless full of ardour and enthusiasm for such a useful and humanitarian work.

We therefore dare to hope that you will let us have the benefit of your opinion, your counsel, and approval, and beg of you, M. le Président, to accept the assurance of our highest esteem.

F. M. de LUNTO, President.

L. CORDEIRO, Perpetual Secretary.

E. de VASCONCELLO, Assistant Secretary.

INTERNATIONAL SYSTEM OF MARITIME LIGHTS AND BUOYS.

To the Geographical Society of Lisbon.

Gentlemen,—The original memorandum treating various maritime services, presented by order of the Society to this commission, has received such general approval, that we do not think it necessary, in submitting it to you, to amplify the arguments on the subject contained therein. To our mind the points have been so carefully elaborated, and the motives so clearly and precisely advanced, that, did we not deem it but just to allow priority to others for some of the ideas enunciated in the memoir, we should dispense with further introduction.

When this memoir was prepared we were not aware of the statements made by two English officers, at a conference held at Trinity House, April 11th, 1883, for the study of a uniform system of buoyage for the United Kingdom, when Mr. T. Stevenson declared that he accepted the proposals because they formed a step in advance towards a scheme of international buoyage; and Admiral Bedford regretted that the conference concerned itself simply about English ports, and that he had it not in his power to induce other countries to co-operate and establish the basis of an international code of buoyage.

It is true that the navies of the various states are in possession of an international code of signals, but, hitherto, no such code has been organised for lights and buoys. We think it is not out of place that Portugal, an ancient maritime power, possessing an extensive littoral, with wide estuaries, should, through a society whose motto is

"*Por mares nunca dantes navegados*" ("By seas never before navigated"), ask the other maritime countries to afford their co-operation in convening an international conference to regulate and unify all the services treated in the memorandum given below.

PROPOSALS SUBMITTED TO THE SPECIAL COMMISSION FOR THE STUDY OF MARITIME
LIGHTING AND BUOYAGE.

Gentlemen,—At the present day civilised nations are more closely interested than ever in improving and simplifying their maritime services. All means which facilitate the access to a port—a bar or a river—help towards the development of the country where these are situated; and therefore it behoves nations not to remain behind, but to push forward necessary improvements, such as constructing docks, and lighting their seacoast, and regulating their navigable watercourses by marking the shoals by maritime signals.

Great Britain, France, and the United States, owe their present position of prosperity among maritime nations, in part, to their systems of buoyage and lighting of ports and coasts and which systems they are constantly perfecting. These nations primarily, and also some others on a less scale, have adopted separate systems of buoyage, which, though differing totally from those of other nations, are nevertheless uniform for the one entire country, as in France, or for certain departments, as in Great Britain.

The buoyage of the canals of L'Orient may serve to demonstrate the advantages of the system of uniformity followed in France. A navigator, knowing the conventions, adopted as to the forms, colours, &c., of the bells and buoys of these canals, will not only be able to freely circulate therein, but he will also be able to navigate in any of the other buoyed ports of France.

By the rate of speed now attained through steam, a steamer may, in the interval of a few days or even hours, on one journey, have to enter one or more of the ports of different nations. Such vessel may meet in the first port a buoy, to be left to leeward, and in the second port, a few hours sail after, it may meet another buoy exactly similar to the first, but signalling a directly opposite course.

In this manner dangerous and difficult possibilities and problems do arise, which could be easily overcome by the adoption of a uniform international system. A great amount of confusion, errors, and complicated work and calculation, would be avoided, if a navigator could at once know, all over the globe, the colours of the buoys and lights to be on the look-out for; which of them he must leave to larboard, which to starboard. Analogous reasons may be urged for, and similar results would be obtained from, the adoption of a uniform international system of tidal signals, weather signals, as also signals of semaphore posts. Further, the adoption of a unique type of buoy, destined to mark the position of submarine cables in bays, or at different points of interest, would be a powerful auxiliary, and a useful complement to the international laws for the protection of these cables.

Therefore, considering the great importance to be attached to the adoption of a uniform international code of buoys and signals, on account of the overwhelming advantages which would accrue from the establishment of such a system—considering, further, that the Lisbon Geographical Society occupies, at present, an important place amongst all societies of scientific study and propaganda—that by its relations with foreign kindred associations and with our own Government, and by its own influence, it is in a position to powerfully advance and obtain the adoption of a uniform and regular system in the means used in facilitating access to ports, bars, and rivers of the various civilised nations—I have the honour to submit to it

That the question of an international conference be studied, and means adopted for bringing the same about, having as object, to obtain uniformity in the systems of buoys and lights for guiding navigation in ports, to bars in rivers, and to dangerous passages which it is usual to specially mark; tidal signals in all tidal ports and rivers; weather signals to warn navigators; and signals of semaphore posts for use in maritime disasters. And that another object of the conference be the adoption of a uniform type of buoy to mark the position of submarine cables at necessary points.

ERNESTO DE VASCONCELLOS, M.L.G.S.

Lisbon Geographical Society, December 14th, 1886.

We apprehend that difficulties will be raised against the principle of uniformity of buoys, and have abstained from proposing any definite system or colour, considering that such is matter for the conference to decide, having regard to the interests involved and the opinions to be brought forward.

History is rich in examples of useful innovations being opposed and obstructed. Amongst others we may mention the question of the universal meridian; a much more knotty problem than the one we propose, and which has been solved, so far, for longitudinal and cartographical purposes; the organisation of an international code of signals was delayed through obstruction, and is now an accomplished fact; and weather signals, now almost universally used, were strenuously opposed on all hands. We see, therefore, that almost all novel ideas have met with difficulties and obstruction before being generally adopted, but we also see that progress must eventually triumph.

In view of the general agreement shown on the subject, believing that the very nature of the proposition justifies its being advanced, without need of further consideration and arguments in its favour, your committee conclude by submitting to you the following decision:—

1. That the Geographical Society should place itself in communication with all kindred societies, and with foreign academies should solicit their support and co-operation, by approaching their respective governments, in order to obtain international uniformity in buoys, bells, and other signals used in regulating and helping navigation.

2. That the Society should also consult on this subject [here follow names of some Portuguese scientific and commercial societies].

3. When the Society shall have obtained the advices and opinions emitted during the discussion which will ensue, it should forward a petition to Government soliciting that the proposition be taken up and treated by diplomatic means, *i.e.*, that the Governments of the maritime nations be requested to give their opinions on the subject, and come to an understanding on the adoption of a system of buoys and bells.

Signed. F. A. Oom (President of Astronomical Observatory), President.

Al. M. Sarmento.

A. C. d'Almeida Soeiro.

D. Tasso de Figueiredo.

E. A. Caceres Fronteira.

H. de Lima e Cunha.

F. F. Xavier de Bisto.

V. d'Almeida d'Eça.

E. de Vasconcellos, Secretary.

Committee of Maritime Buoyage and Lighting of the Geographical Society.
Lisbon, June 20th, 1887.

INTERNATIONAL CONGRESS ON SCIENTIFIC GEOGRAPHY AT PARIS, 1889.

Geographical Society, Paris, June 11th, 1888.

The President of the Manchester Geographical Society.

Sir,—The Geographical Society has resolved to take advantage of the Universal Exhibition of 1889 to hold a Congress at Paris. This Congress will be held in the month of August next year, in the premises provided for learned societies by the Minister of Commerce and Industry, commissioner-general of the exhibition. The Society requests you to make this known to geographers and explorers, and to all friends of geographical science, who will be equally welcome.

The Congress will be divided into seven sections: (1) Geodesy, Hydrography, and Topography. (2) Physical Geography. (3) Economic and Commercial Geography. (4) Historical and Ethnographical Geography. (5) Educational Geography. (6) Voyages and Travels. (7) Cartography.

The subscription to the Congress will be, for ordinary members 40 francs; and for honorary members 20 francs. The members of the Congress present at the meetings will have the power to vote, and will receive reports of the session and of all publications issued. The members will receive a ticket of membership after the payment of their subscriptions. They will also receive a medal commemorative of the work of the Congress, and the donor members will receive a grand medal.

The organisation of the Congress and the preparation of a settled programme requires a long preparation. The Paris Geographical Society will therefore be glad to receive, as early as possible, the names of intending members, that they may be published at once in the report of the Society.

You will, doubtless, wish to inform us in reference to the questions you may wish to be discussed that commend themselves to you as most useful.

For the present the Society submits for your approbation a wish whose realisation appears desirable.

Each Society is requested to send, for the country represented by it, an account of the travels, voyages, and researches, and of publications for the last century which have contributed most to the progress of geography.

The whole of these accounts will be published with the author's name, and will constitute a most valuable contribution to the history of geographical science.

Please to accept the thanks of the Society for the service we trust you will give and the expression of our most distinguished sentiments.

Signed. FERD. DE LESSEPS, President of the Geographical Society, and
Member of the Institute.

C. MAMOIR, General Secretary.

E. RAMY, President of the Central Commission.

Cte. DE BIGEMONT, Vice-President of the Central Commission.

C. GAUTHIOT, Gen. Sec. of the Commercial Geographical Society.

Geographical Society, Paris, July 10th, 1888.

Sir,—We have the honour to call your attention to a letter addressed to the President of your Society in reference to the International Congress of Geographical Sciences which is to be held at Paris in 1889, and to desire you, obligingly, to interest yourself in the communications which will be sent to him. It will be especially useful for us to have settled at the earliest possible date the decision as to the work to be done by your Society in relation to the concise statement of the travels,

discoveries, and publications, which, during the century, have most contributed to the progress of geography. As soon as the secretary charged with this work for you has been appointed, we shall make a point of arranging with him as to the plan and the limits of the work which it will be convenient for your Society to undertake.

Our intention is to send personal letters of invitations to the most eminent geographers. We will be grateful to you if you will consent to correct or complete their address. And we shall be glad if you will give the subject of the Congress all the assistance you can, and any suggestions you may desire.

Please to accept, sir, the expression of our most distinguished sentiments,

GAUTHIOT, Secretary-General.

COMTE DE BIGEMONT, Vice-President of the Central Commission.

Mr. Sowerbutts, Secretary of the Manchester Geographical Society.

INTERNATIONAL CONGRESS OF AMERICANISTS, BERLIN, 1888.

Sir,—We have the honour to forward you the programme of the organising committee of the International Congress of Americanists for 1888.

We hope that, in the interests of the science, you will honour the Congress with your subscription and presence.

It will not be possible to give to the Congress of Berlin the brilliant character that at preceding Congresses has been so successfully united with serious and useful studies.

The organising committee, seeing that the Congress ought to be confined to the scientific work sketched by the programme, feel doubly bound to offer a cordial reception to all those who wish to lend to it their valuable concurrence.

Accept, sir, the assurance of our respects.

REISS, President of the Organising Committee.

HELLMANN, Secretary of the Organising Committee.

SHORT PROGRAMME.

By decision of the International Congress of Americanists, held at Turin in 1886, the city of Berlin has been designated as the seat of the Seventh Session, which will take place from the 2nd to 5th of October, 1888.

The Congress has for its object to help the progress of scientific studies relative to the two Americas, especially to the time anterior to Christopher Columbus, and to report to the persons interested in the studies.

Every person, interested in the progress of the science may join the Congress by paying the assessment, which is fixed at twelve francs. The receipt of the treasurer is the members' card and all publications.

The adherents are requested to send as soon as possible the amount of their assessment to the treasurer of the Congress, M. le Consul-Général Wm. Schönlanck (Kopnick Strasse 71, Berlin, S.O.), by a cheque on Amsterdam, Berlin, Bruxelles, London, or Paris.

The communications will be verbal or written, and shall not last longer than twenty minutes. The memoirs for which the lecture requires more than twenty minutes will be laid before the officers, and it will be presented to the Congress if a recapitulation is written, or verbal, making the object known, such as the important points and the conclusions of the work.

The authors who send memoirs to which this last regulation will be applicable ought to forward at the same time an analysis.

The memoirs of persons who will not be in Berlin, ought to be sent to the Secretary of the Committee before the 15th of September, 1888. Also, the members who would like to make the communication in person, are asked to let the Secretary know before the 15th September, so that the detailed programme of the Congress may be distributed at the opening of the meeting.

Those who propose to take part in the work of the Congress are earnestly begged to substitute for a reading an oral communication.

The books, manuscripts, or other objects offered to the Congress will be acquitted to the city of Berlin—their definite destination will be determined by the Organising Committee after the closure of the session.

In accord with the Council of the Turin Session, the Organising Committee propose the following questions to be submitted to the discussion of the Congress : Geography, History, Geology, Archaeology, Anthropology, Ethnography, and Languages.

The first journal of the Congress will be dedicated to the history of the discovery of the New World, to the history of America prior to its discovery by Columbus, and to American Geology ; the second to Archaeology ; the third to Anthropology and Ethnography ; the fourth to Languages, &c.

All letters and communications concerning the Congress, should be sent to Dr. Hellmann, Secretary of the Organising Committee of the Congress, 120 Königgrätzer Strasse, Berlin, S.W.

MR. H. E. O'NEILL, H.B.M. CONSUL AT MOZAMBIQUE.

H.B.M. Consulate, Mozambique 17th March, 1888.

Dear Sir,—I have great pleasure in presenting to the library of the Manchester Geographical Society two volumes, which I trust will prove a valuable addition to your Society's collection. They are (1) *The Voyages of Giovan. Leone, of da ca Da Mosto, of Pietro di Cintra, of the Carthaginian Captain Annone, and others* (*Il Viaggio di Giovan. Leone, &c., Navigazioni da ca Da Mosto, di Pietro di Cintra, di Annone, &c.*), by the well-known Italian Ramusio (1485—1557), the present edition of which was published in Venice in 1837 ; and (2) *The Discovery and Conquest of Guinea* (*Chronica do Descobrimento e Conquista da Guiné*), by Gomes Eannes de Azurava contemporary and friend of Prince Henry the Navigator, completed in 1448, and translated from the MS. in the Royal Library of Paris, by Viscount Casseira, Portuguese Ambassador to Paris in 1841.

Both these books are rare, and have cost me, or rather my friends, some trouble to obtain. They were got for me at a time that I hoped to be able to undertake the translation of one or both of them into English. But other things have intervened and crowded out that work, and as time goes on I see no prospect of being able to carry it out. My hope in presenting them to your Society is that they will not now lie any longer unutilised and as mere curiosities of mediæval literature, but that someone may be found with more leisure, and more capable than I, to translate them for the benefit of English geographical readers.

You will receive them shortly with this letter, from the Rev. Lawrence Scott, of Denton, Manchester, who has been my companion on the journey I have just completed to the north extremity of Lake Nyassa.—Believe me, dear sir, yours very truly,

HENRY E. O'NEILL.

To the Secretary of the Manchester Geographical Society.

REVIEW.

THE UNKNOWN HORN OF AFRICA. By F. L. JAMES, M.A., F.R.G.S. With Additions by J. GODFREY THRUPP, M.R.C.S. *London: George Philip and Son.*

MANY readers who are aware that the Foreign Office regularly publishes consular reports from the Somali coast will probably be surprised to hear that until the exploration described in this book the interior of Somali Land was one of the least known regions of Africa. Several previous and subsequent attempts to explore it have been made, but these have all proved unfortunate: the explorers have either been forced to abandon their attempts or have paid for their temerity with their lives. The journey described in this book was undertaken in 1884 by Mr. James and his brother, with three English companions, Messrs. G. P. V. Aylmer, E. Lort-Phillips, and J. G. Thrupp, and an escort of natives enlisted, armed, and drilled at Berbera. Mr. James is an experienced traveller. The tragic fate of his predecessors seems merely to have impressed Mr. James with the necessity for caution. He appears to have been guided in his measures by Sir Richard Burton's estimate of the character of the natives, which he endorses. Great patience as well as caution is essential if the traveller is to pass safely through the country, as the anger or suspicion which prompts to assassination may be so suddenly excited as to leave the victim no time to discover that anything is amiss or to adopt defensive measures. Mr. James and his companions had frequent occasion to be thankful for narrow escapes, due to the fact that they were ever on the alert, and were thus able to ward off attack until the storm subsided, which it appears to have invariably done as rapidly as it arose. The medical skill of Mr. Thrupp, who acted as doctor to the expedition, also seems to have proved helpful in securing respect and goodwill. The chief danger incurred by the travellers was, in fact, due to the *indiscreet anxieties of the Foreign Office* and the *British officials at Berbera*, as the latter, in consequence of instructions from home, uselessly endeavoured to stop the expedition after it had started on its way, the result being that the most disadvantageous rumours preceded it to the Ogadayn. The party succeeded, however, in reaching the Webbe Shebeyli—where the Somali ethnological characteristics begin to merge into those of the negroid types of Central Africa—and returning by a somewhat different route northward, without serious mishap. Perhaps one of the most noteworthy physical features of the country is the tendency of the rivers to lose themselves in swamps and in the sands without ever reaching the ocean. Analogous phenomena were observed by Rohlf's in the vicinity of Lake Chad, and they will probably prove to be the explanation of many of the hydrographic puzzles of Northern Africa, many of the lakes being merely huge reservoirs storing the waters of torrents which have no other outlets, and which flow only during certain seasons of the year. Mr. James describes many curious manners and customs of the natives, which are the more interesting as the Somalis are a link between the Asiatic and African races. There is an extensive appendix to the volume, consisting of classificatory descriptions by various experts of the specimens of the fauna and flora brought home by the members of the expedition. A series of very spirited illustrations, prepared by Mrs. Gordon Hake from photographs taken by Mr. W. D. James and Mr. Aylmer, give a graphic idea of the scenery, natives, and incidents of the journey. A number of hand-painted pictures of the butterflies, mammals, and particularly birds of the country, give the work the character of a *livre de luxe*. There is also an itinerary map.—*Manchester Guardian*.

PORTUGAL AND AFRICA.

Letter of His Excellency Henrique de Barros Gomes, Portuguese Minister of Marine, to the Geographical Society at Lisbon.

EXCELLENCY,—The motion voted by the Geographical Society on the 3rd inst., carrying a patriotic and opportune affirmation, could not be otherwise than well accepted by the Government, who, in defence of the great interests entrusted to them, always encounter the first element of strength in the approval of the opinion, the harmony with its acts, and of the thought of those who inspire with the aspirations of the country, and the feeling and national desires.

Fortunately has passed the first and strong commotion raised by the events which gave the immediate origin to the official note of your Excellency, to which I answer, "The public feeling is quieted, and the authority established."

In Lorenzo Marques, we have long ago collected elements of forces, indispensable to secure the maintenance of order, and the necessary investigation concerning the condemned act which so unexpectedly came as a sudden surprise to the public opinion in Portugal.

The Government will not fail in the duties which remain for them to fulfil, refined as may be their responsibilities, be it in chastising faults, in rectifying errors, if such happened, and avoiding in future their repetition.

What is, however, required besides this, and above all, is that the country should well understand the exceptional gravity of the present historically momentous crisis, as regards the problems it behoves us to solve in Africa.

It cannot, nor ought it to be, an excessive surprise to us, what one or another foreign publisher may write about Lorenzo Marques.

The most splendid port of all the African coast will continue to be Portuguese, because with the decided national will to maintain it so, are combined the most clear manifestation, the good faith and loyalty of friendly nations and neighbours, and even the proper interests to a certain extent clashing with these nations, which lead them to prefer an historical and actual solution to others which might wound them in their commercial development or in its independence.

But if Lorenzo Marques constitutes the most ample entrance of Southern Africa, Mozambique, besides the most extraordinary richness, both mineral and agricultural, from its dense population, is susceptible, as prove practical and precious examples, to apply itself to free labour. Mozambique encloses with Zambezi, Chire, and other affluents of the great river, and with the Nyassa lake—the best way of penetrating into Central Africa, and into the Equatorial regions.

Such a situation imposes upon us duties with every nation interested in the development of our Christian and European civilisation.

It is necessary to frankly accept the charge of such duties. It is necessary to carry, without loss of time, to the Portuguese frontier the railway of Lorenzo Marques, and to establish a frank intelligence with the Transvaal Government, whose interests are in accordance with ours, for to arrive at a common agreement upon tariffs, indispensable and equitable, between the two companies, permitting that the construction of the line may continue without hindrance to Pretoria.

This is an urgent necessity, and imperative of the Government, the which finds itself firmly disposed to attend to without any delay.

To facilitate the great fluvial way of the penetration of the Zambezi and the Chire is another indeclinable duty, and which urges us equally to attend to at once.

For this it is necessary to destroy or overcome the natural barrier which at present hinders the commencement of this proficiency.

The navigation of the Zambezi, from Mazaró to Sena, within a distance of 115 to 120kilos., is most difficult. The river of Quilimaine, or Bons Signaes, only at the time of the great overflows, communicates with the Zambezi at Bora-boanda, through the turning of the tide, at the confluence of the Chire and the Mazaró. How, if at present effected, the transport of merchandise, and even of shipping, out of the epoch of the overflows.

Part crosses, transported on carriers' backs or trailed along at Bora-boanda, from the Zambezi to the Quilimaine river; part goes to the Mazaró by the Zambezi, thence follows, carried on shoulders, to the Mutu, an affluent of the Bons Signaes; and part finally descends, under very difficult conditions, down to Inhamitendo, the real bar of Zambezi, and of all the indicated journeys the least profitable, be it by the navigation of the great river, or by the bad state of the bar.

It must also be noticed that the navigation of "Bons Signaes," or Quillimaine river, is equally conducted under circumstances of extreme disadvantage.

The construction of a railroad of 150kilos. only, which, starting from Quillimaine, would follow on to Mopeia, and from thence the proximities of the Chamo, mounting some kilometres of the confluence of the Chire, could throw a branch of 12kilos. to Mutaca Taca, the egress of all the commercial movements verging to the Gorungosa mountain. This railroad, the traffic of which, on the stated authority of all who know the region, could in ten years arrive at upwards of 60,000 kilometric tons, would be in fact an opening of the Zambezi, and of the Chire, and the better title modern, we allege, to the maintaining of our dominion of the great river and its affluents.

From Sena to Tete the Zambezi is easily navigated by steam-launches, as also the Chire, to the extent of 230 to 240kilos.

Later on these can be overcome by the two railroads, relatively to the small extent of the rapids of Quebrubaza, east of Upper Chire, and thus will be practically overcome for commerce; and for civilisation this great fluvial artery, which will allow to follow on one side up to Cafue, and by this means to the centre of Africa, and with it to the proximities of the Equatorial lakes.

This plan, patronised and authorised between us, with the names of I. I. Machado, of Moraes Sarmiento, and of Caldas Xavier. By this last in his recent survey, and by many interesting investigations concerning the Zambezi district, this plan, with which the Government is in entire conformity, is going to have a commencement of execution, with the surveys to which we have on the terms of a contract, which I have ordered to organise, and which will be shortly signed, will proceed to the line from Quillimaine to Chire, and to which above I have made reference.

Portugal has been unjustly accused of wishing to sign herself to a most intransitive and exclusive policy, and of difficulties and barriers to the commerce of the world. Such is not, nor cannot be, the wish of the Government, in the very diverse conditons, development, and assimilation, which are encountered in our two great colonies of the east and west coasts. It is not possible to apply an economic legislature which has every reason to be for Angola.

We can, and ought to, treating as much as possible to naturalise the colony, for the which she offers precious elements, facilities on par of this frankness, the navigation of the Zambezi, to establish moderate duties on customs for the transit of merchandise destined for the interior, and make a return possible of the enormous mineral riches of the province. To do this is but an indispensable condition, that the facilities thus conceded to the world's commerce is not converted into an instrument of combat against our political dominion.

The clear and frank acceptance of this, and the indispensable determination of the limits of the province, in accordance which beg and justify the priority and grandeur of our discoveries, and the traditional influence by us exercised in Africa, our just national aspiration, and the heavy sacrifices which the country has enjoined us long ago, to correspond to its duties as a colonial power. Such is the essential and primary element.

I repeat for that the economic policy of the Government, assumes in Mozambique, that opening liberal character which we are so much pressed to give it.

Much has been advanced in the wish to secure this international guarantee preliminary; there remains another and essential step.

The Portuguese Government has not refused to advance it by itself, but for this it cannot contain the responsibility in the maintenance of a restrictive policy, which an alien word of absolute justice will make it fall in a moment.

Nor can it certainly claim an equity from any one, and much less from a nation with our traditions, that with a good will deliver arms, by which later on it can be attacked.

The eloquent voice and conviction of a prelate, who is the glory of France, and who worthily continues in the primary cathedral of Cartage, the great traditions of the church of North Africa, moves to-day all entire Europe, procuring to hasten the happy moment, to put an end to the horrors of the traffic which threatens to depopulate the interior of the great black continent.

Portugal can and ought to associate itself with any efforts and tentative practices, in this intention, generous and most Christian-like.

We do not do with this more than to persevere in the way long ago followed by us.

It is the intention of the Government to have extracted from the archives of the Chief Commander of the Navy, and also of the Direction Ultramarine, the documents which can prove what was the effective co-operation rendered it by our national

marine, or be it by the colonial authorities, to the abolition of the slave traffic, a task in which we work constantly, and which was completed by the law of 29th April, 1875, to which was joined the venerated name of Sã da Bandeira, and which has the counter-sign of Joao d'Andrade Corvo.

To the workers of civilisation and of the faith, employed in favouring the movement, which they claim to inaugurate in Europe, there will certainly be wanting the sympathies of Portugal, who protecting with efficacious, and from conviction, the Catholic religious mission, and combating slavery, respects her dearest traditions, and serves her best actual political interests.

But to realise with security this progress—to implant in Western Africa the benefits on the way of realisation—is to undertake there the indispensable construction of the Mossamedes railroad ; to finally understand the very urgent necessities of the bettering the material and personnel of our gallant marine, who such great and distinguished services are daily rendering to our country. It is indispensable, besides the public opinion, and the liberality of Parliament, the spirit of the undertaking, the individual initiative, the attention of our capitalists for the undertakings beyond the sea, which represent a sure hope of the future better, and to realise a great portion of these who will not fail us for certain, with the indispensable help of foreign capitalists, attracted by the utility of the undertaking, and by the solidity of our credit, happily raised at the actual moment to a height without precedent by us.

How much can contribute to rouse this interest and to establish this sympathy, well-merited society of which your Excellency is president, is useless to refer to.

The valuable results assured up to to-day is a better guarantee of what in future will follow ; and with an expression of full confidence that I terminate this truthful exposition of the Government's ideas, the which I trust will meet a sympathetic echo in the bosom of the Geographical Society of Lisbon, of the which I feel much honoured in being of the members one of the founders.

(Signed) BARROS GOMES, Minister.

To the His Excellency the President of the Geographical Society, Lisbon.

MANCHURIA.

OF the fifteen chapters of which this book is composed, the six first are devoted to the history of Manchuria, a description of its people, administration, religion of the country, and missionary work. In this portion of his book Mr. James has produced what is probably the most complete sketch of the history of Manchuria that has been published in the English language, his information having been derived from the most reliable sources, and compiled in the most painstaking manner, while much that he tells us in the remaining portion of his book with regard to geography is entirely new, and conveys a far more accurate idea of the physical features of this little-known country than could be gathered from all the books or maps that have been previously published.

The journey which the author describes was alike an adventurous and remarkable one, and was undertaken under the following circumstances. Mr. James, who is a member of the Indian Civil Service, had, in the winter of 1885, become entitled to two years' furlough, and determined to spend part of it in China. He was fortunate enough to find a companion in Lieutenant Younghusband, of the King's Dragoon Guards, who possessed some practical experience in surveying ; and afterwards, when the journey into Manchuria was decided on, Mr. Fulford, of the Chinese Consular Service, joined them. As this gentleman was not only acquainted with the manners and customs of the people, but is also an accomplished Chinese scholar, he must have been a most valuable acquisition to the party, especially as the journey was made in a country where perhaps the greatest difficulties and dangers that Europeans meet with most frequently arise from not being able to understand the natives, or to make themselves understood, as Chinese servants are seldom to be relied on as interpreters.

The party arrived at Yingtzu on May 16, 1886, and, after a few days spent in making preparations, set out with six carts for Moukden, at which place they met with their first disagreeable experience of Chinese amenities. They were walking round the walls of the city one evening, when they unfortunately attracted a crowd, which took to pelting them with stones ; they must, however, have been very bad shots, for no harm was done. The farthest point north reached was Isitsihar, and then turning eastward the party travelled to San-sing, from which place they proceeded by way of

Ninguta to the Russian posts of Swanka and Novo-Kievsk, where they were very hospitably received by the Russian commanding officer, Colonel Sokolowski. At Hun-ch'un Mr. James parted with his two companions, as he was desirous of making a short cut to Omoso, a greater part of which route had never before been described, while Mr. Fulford and Lieutenant Younghusband were to return by way of Ninguta to Kerim. Before the author set out, the Chinese general called on him, and did all in his power to dissuade him from making his proposed journey, assuring him that in the great forests through which he would have to pass there were bands of brigands, who occasionally rushed out on travellers and cut their throats. Mr. James, however, remained firm to his purpose, and the Chinese general had to give way, which he did with such bad grace that he would not stop for the usual tea-drinking.

It was made a special stipulation by the muleteers with whom the author travelled that he was to get up and start at the same time they did; and, to prevent any mistake about early rising, he was called up on the first morning of his journey at half-past one. The cold had now (November) become very severe, and for several days in succession the thermometer fell to 7° Fahr., so that, in order to keep his feet warm, Mr. James had to walk the greater part of the way; while, to increase the discomfort, it sometimes snowed and blew. "Then," says the author, "it was very miserable," and we can quite believe him. Indeed, we may here remark that throughout the journeys he describes there seems to have been very little comfort. The party appear to have spent a goodly portion of their time floundering through swamps and quagmires, where gadflies and mosquitoes savagely attacked them, climbing mountains, or being half frozen. There were some pleasant times, but these seem to have been few and far between. This, we think, is the conclusion which most ordinary mortals would arrive at from a perusal of the book; but there is nothing to show that any of the party considered these discomforts as serious drawbacks to the enjoyment of their holiday journey.

There appears to be no lack of large and small game in the country traversed, but the time at their disposal was too limited to permit of the party making any stay in the most promising places, and though tigers were numerous in some districts, the natives, with the exception of the professional hunters, seem to have no love of sport, and it would be a difficult matter to organise a sufficient number of beaters for a tiger hunt; the journey was, in fact, undertaken for exploration, and not for sport, so that what shooting was done was for the pot.

As we have already remarked, there are many things which Mr. James tells us that add considerably to our geographical knowledge of this part of the world; foremost among these is the manner in which he describes the Long White Mountain. This has heretofore always been represented on maps as a whole range of peaks covered with eternal snow, but on visiting the neighbourhood of the supposed range the author found that it was not known to the people, but that there was a very celebrated mountain, the "Lao-pai Shan," or Old White Mountain, which he eventually ascended, and that the supposed range was a curious exaggeration of this celebrated peak, which only attains the height of 7,525ft., and obtains its name of "white," not because it is always covered with snow, but with wet, disintegrated pumice, which gives the whole steep side a shining white appearance.

The book concludes with six interesting appendices, a list of plants collected by the author, an itinerary, and a copious index. It is well illustrated, and an excellent map on which the author's route is laid down is also given.—*The Field*.

Mission to El-Wedj. By Captain CONTERS SURTEES.—El-Wedj is a port on the east coast of the Red Sea, used by the Egyptian pilgrims returning from Medina. In 1837 Turkish troops occupied the fort which commands the harbour. The author of this paper, temporarily seconded to the Egyptian army, was sent by the Egyptian Government to report upon the general condition of the region. Accompanied by an Egyptian officer and Mr. Cope Whitehouse, he inspected the New Fort, the Old Hill Fort of the ninth century, the alleged gold mines, a sulphur mountain, Roman remains in the Wadi Hamz, rock-hewn inscriptions, and encampments of various tribes. Photographs were exhibited, and the strategic and commercial importance of the district discussed. The whole of Egypt in Arabia east of the Gulf of Akaba has now been formally transferred to Turkey. Captain Surtees is of the opinion that there is no auriferous quartz in this neighbourhood, but that petroleum does exist, and that the valleys might be occupied by a considerable population, if proper efforts were made to encourage permanent settlements.—*British Association*, 1888.

Tunis since the French Protectorate. By Sir LAMBERT PLAYFAIR, H.M. Consul-General for Algeria and Tunis.—The system of government adopted is totally different to that of Algeria, which may be styled “Colonisation de luxe.” No state assistance of any kind is given, not an immigrant has been imported, not an acre of Arab land has been confiscated, and the whole civil charges borne by France do not exceed £6,000 a year. A very short time ago the interior of the country was practically a *terra incognita*; now it is being rapidly opened out to European enterprise, and it promises soon to rival Algeria in what must always be the principal industry of North Africa, viliculture. Commerce also has increased in a notable manner, but the beautiful and characteristic arts of the country appear to be in a state of decadence. It is impossible to speak of Tunis and be silent regarding the most eminent Frenchman there, Cardinal Lavigerie, Archbishop of Carthage and Primate of Africa, who, by the great work he has carried out, has earned the reputation of ranking almost the highest amongst the prelates of his Church. He has now been sent by the Sovereign Pontiff to preach a crusade against the nameless horrors of the African slave trade in every capital of Europe. The Cardinal’s aim is first to awaken the public conscience to the enormity of the wrong which is being daily perpetrated, and which is rapidly desolating one of the fairest portions of the earth’s surface, and so to prepare the way for any remedy which His Holiness may have to suggest; and which, coming from him, might well be accepted by every Christian nation in Europe, Catholic and Protestant alike.—*British Association*, 1888.

Recent Explorations East of the Jordan. By CAPTAIN A. M. MANTELL, R.E.—The portions of Eastern Palestine which have been recently explored are three in number, viz., five hundred square miles surveyed by Major Conder, R.E., to the north-east of the Dead Sea, and two portions of 450 and 240 square miles respectively near the sea of Galilee, surveyed by Herr Schumacher. The principal points were fixed with the theodolite and a triangulation linked with that of western Palestine. Detail was filled in with the prismatic compass and altitudes of subsidiary points fixed by means of the aneroid barometer. At the same time information was collected as to the Arab tribes and their history, and ruins, dolmens, &c., were measured up and sketched. Some difficulty was experienced in ascertaining the names of places, but still more in spelling them with correct Arabic letters. About thirty Biblical sites have been recently recovered, including Mount Peor and Bamoth Baal. Some time was spent at Ammán, a city abounding in Roman ruins. The Mohammedan remains are less important, but include a Sassanian building which throws light on early Moslem architecture. Rabboth Ammon is now occupied by a colony of Circassians. “Arak el Emir and the ruined palace of Hyrcanus were also sketched and photographed. They are found to agree very well with Josephus’s description. Several hundred dolmens were observed, plans and sections being taken of the best preserved; those in Moab seem to be sacrificial, not sepulchral. A number of menhirs were discovered, and plans were made of several large ancient stone enclosures. The latter are often imitated at the present day on a small scale. Tombs are surrounded by circular enclosures, at which the Bedowy prays and makes his offerings. Two groups of the stone pillars, called “Serâbit,” and several disc stones were also found. Herr Schumacher’s work in the Jaulân and Haurân was executed while surveying the country for a railroad to Damascus. He has drawn up geographical gazetteers of the various districts. Through his work the ancient Kokaba has been discovered. He has also fully described some of the underground cities. In addition to the above he has surveyed and written a pamphlet on the ancient Pella. Herr Schumacher has examined numerous dolmens, and come to the conclusion that they are sepulchral in their origin. A large part of eastern Palestine still remains to be surveyed; a work which ought to be carried out at the first opportunity.—*British Association*, 1888.

O B I T U A R Y .

Amongst other members who have ceased to be with us by death, and whose loss we deplore, we regret to mention Mr. Alfred Bickham, one of our earliest members, and who took a great interest in our work. He died February 27th, 1888.

REPORT, 1887.

THE Council has the pleasure to present to the members the following report of the work and progress of the Manchester Geographical Society for the year 1887.

The work of the Society has during the year been considerable.

ADDRESSES.

The quality of the addresses and papers read to the members has been remarkable for the attention to the questions affecting trade and for variety of information.

The following addresses and papers have been delivered to the Society (those marked with an asterisk (*) have been published in the *Journal*):—

1887.

*January 18th.—“The Teaching of Elementary Geography.” A practical lesson, illustrated with models. Miss Sturgeon, Ilkley.

January 25th.—“Japan, and its Commerce.” Lantern illustrations. Mr. C. Harris, F.R.G.S.

*February 4th.—“On Western China and the River Yang-tze-Kiang : geography and trade.” Illustrated with maps and water-colour views of the gorges of the river, and Chinese guide books. Mr. Archibald J. Little, F.R.G.S., of Shanghai.

*February 17th.—“On the Discovery of Britain.” Illustrated with maps, views, and sketches. Professor W. Boyd Dawkins, M.A., F.R.S.

*March 2nd.—“Railways in India : their advantages and the necessity of their extension.” Maps. Mr. J. K. Bythell, of Bombay and Manchester.

March 9th.—“Recent European Acquisitions in Africa.” Maps. The Secretary.

March 23rd.—“The Title Deeds to Nyassa.” Rev. H. Waller, M.A., Thrapstone.

April 6th.—“The Manchester Ship Canal.” Large model, maps, and diagrams. Mr. E. Leader Williams, C.E.

*April 13th.—“Buganda.” Map. Rev. R. P. Ashe, M.A., of Buganda.

April 19th.—“Some Notes of Travel in India.” Mr. Henry Lee, J.P.

*May 13th.—“Gold Supply : its effects on finance, trade, commerce, and the industries.” Mr. T. Cornish, M.E., London.

*May 26th.—“East Africa.” H.B.M. Consul, H. E. O'Neill, Mozambique.

U.S.A.

September 5th.—“Alaska.” Lantern views. Professor Libbey, jr., Princeton, U.S.A.

*November 8th.—“Burma, our gate to South-West China.” Maps. Mr. A. R. Colquhoun, F.R.G.S.

*November 9th.—“The Eldorado of Burma.” Mr. G. S. Streeter, London.

*“The Present Condition of the Traders, and their Relation to the Independent State of the Congo.” Mr. R. E. Dennett, Banana.

*November 23rd.—“The Dyaks of Borneo.” Maps and illustrations. Rev. E. Dunn, Kanowit. *“Formosa.” Mr. A. R. Colquhoun, F.R.G.S.

December 7th.—“The Lower Congo : a sociological sketch.” Lantern slides. Mr. R. C. Phillips, Banana.

- *December 16th.—“Trade Prospects with the Soudan.” Major Watson, R.E., C.M.G., late Governor-General of the Red Sea littoral. **“The Red Sea Trade.”* Maps. Mr. A. B. Wyld, Jeddah.
- *December 20th.—“Manchuria : its Geography, Products, and Trade.” Map. Mr. H. E. M. James, of the Bombay Civil Service.
- *December 21st.—Report of Delegate to the Meeting of the British Association, held in Manchester. **“The Bangala.”* Map. Capt. Coquilhat, of the Belgium Army. **“Matabeleland.”* Maps. Capt. C. E. Haynes, R.E.

EXCURSIONS.

In addition to these meetings the members of the Society visited :—

- April 19th.—The Ancoats Art Museum, to inspect the beautiful works on exhibition at the institution.
- October 22nd.—The Preston docks and river works were inspected, under the guidance of the Worshipful the Mayor, Alderman Bibby, and Mr. Walker, the contractor.
- November 5th.—The members visited, with great pleasure, for the purpose of examining the rare geographical works, and of looking over the College—our beloved Chetham College and Library. A list of the books seen on the occasion is printed, which was prepared for the Society by the librarian. (See p. 293. Vol. 3.)

MEETINGS.

At meetings held January 12th, 26th, February 9th, May 26th, and as part of the business of other meetings a close examination of the numerous foreign exchanges now being sent to the Society was made, and at a good many meetings some selections from the correspondence with other Societies and with correspondents abroad were read and discussed. A large number of short communications were made at the meetings on interesting geographical topics, as the Emin Bey relief expedition, geography in the magazines and newspapers, &c., &c.

DIAGRAMS AT THE EXHIBITION.

Considerable time has been occupied, and hearty help given by ladies and gentlemen, members of the Society, in preparing information needful, and in drawing and designing a series of broad and effective diagrams of the world's raw products and manufactures, exhibited at the Royal Jubilee Exhibition, which covered a space of about 50ft. by 50ft., and which were very effective. The diagrams represented the following subjects, and were worked out in colours of a distinctive character :—

RAW PRODUCTS OF THE WORLD.

1. 6ft. by 9ft. Fur, Wool, Cereals.
2. „ „ Cotton, Flax, Silk.
3. „ „ Iron.
4. „ „ Coal.
5. „ „ Gold.

MANUFACTURES OF THE WORLD.

6. 6ft. by 9ft. Cotton.
7. " " Iron, Machinery, and Ship-building.
8. " " Salt, Phosphates, and Chemicals.

ENGLAND AND WALES.

9. 6ft. by 4ft. Raw Products.
10. " " Manufactures.

GENERAL MAP OF THE WORLD.

11. 12ft. by 12ft. Tariff Map. Barriers against British trade.

The thanks of the Society are due to Mr. Alderman Schofield and others, to the Committee of the Exhibition, and the workers of the diagrams, for their help in carrying out, with considerable difficulty, this very effective piece of commercial geographical education, and to the Jubilee Exhibition Committee for kindly granting the necessary space required.

EDUCATION.

The Council have been pleased to observe, during the year, an increased interest in Geographical Education.

They have reason to believe that by the action of the Royal Geographical Society, chairs of geography will soon be established at the two great Universities, and are not without hope that, in the near future, a chair may be established in connection with the Victoria University. They also note with pleasure the geographical chair at King's College, held by Professor Seeley.

The teaching of commercial geography has begun to attract considerable attention, and the splendid work done at St. Bede's College in this direction has called the attention of other managers of the higher schools to the importance of the question.

The officers of the Society have had great pleasure, during the year, in giving advice to a number of school managers who have applied to them for their aid in better furnishing their schools with geographical appliances.

The addresses of General Strachey on Geographical Education and of the President of the Geographical Section of the British Association (Major-General Sir C. Warren) have largely helped to awaken interest in the question of Geographical Education.

The Council have also had under their consideration the foundation of commercial museums, and trust, during the coming year, to bring the question prominently before the members.

A series of visits have been commenced by members of the Society to the public libraries, museums, and institutions of the district. The visits themselves have formed pleasurable excursions to the members who have taken part in them, and the results obtained are of very great value.

The great riches of the public libraries in geographical works is amazing, and the bibliographical lists will particularly show to our members how much there is within reach of the best and most interesting geographical knowledge.

The Council regrets that it has not been possible to have a thorough discussion of the question of State Emigration and Colonisation, but trusts that it may be arranged for the coming session.

The exchange of publications and correspondence with foreign Societies has continued with great pleasure and profit, and the large accessions to the Library demonstrate the great interest taken by Societies abroad in the work of the Manchester Geographical Society.

The interest in the Society at home is increasing, and gives us hope we shall be able shortly to announce a large accession of new members. The heavy losses caused by deaths and removals have been more than made up.

The debt owing by the Society has been reduced, and the Council hope that, during the coming year, the balance owing may be entirely swept away.

The Council are pleased to notice the large additions made to the Library by gifts from members and others; and it has been a cause of gratification to find the extensive use that has been made by the members of the books, maps, and diagrams in the rooms of the Society.

The income of the Society last year about balanced the expenditure. The accounts have been duly audited by Mr. Thos. Gregory, F.C.A., and Mr. J. C. Blake, and will be found at the end of the report.

In concluding the report the Council begs to draw the attention of the members to the large amount of work done during the year, to the very important issues raised in the communications to the Society, to the need for a further expansion of the work of the Society in all the various directions indicated in the programme of its work set forth in the rules. The Council will be glad to receive the active help of the members in increasing the membership, in donations towards the debt, in such addition to the Library and Museum as they may be able to obtain.

The need of the Society increases more and more as foreign countries waken up to the value of colonial possessions, and are improving their commercial methods.

This country, with its widespread empire and pressing needs, cannot afford to be left behind in the race, and the object of this and kindred societies is to help to equip our people with the knowledge required.

The Society appeals not only to the business sentiment, but is in touch with the highest developments of the race, in the social as well as in the religious world.

DEFICIENCY ACCOUNT,
January 1st to December 31st, 1887.

Dr.			Cr.			
1887.		£ s. d.	1887.		£ s. d.	£ s. d.
Dec. 31.	To Donations received	109 13 6	Jan. 1.	By Balance brought forward :—		
	„ Balance still owing ..	98 7 2		Preliminary and Furnishing Account	36 2 9	
				„ Exhibition 1886 Account	98 11 7	
				„ Deficit on Revenue Account, 1886 ..	72 18 3	
						207 12 7
			Dec. 31.	„ Deficit on Revenue Account, 1887		0 8 1
		£208 0 8				£208 0 8

Memorandum : The sum of about £55 has been promised on condition that this adverse balance is paid off.

REVENUE ACCOUNT, 1887.

Dr.				Cr.			
	£	s.	d.		£	s.	d.
To Members' Subscriptions—				By Expenses of Meetings	84	10	6
„ 220 Ordinary at 21/-.....	336	0	0	„ Journal, July, 1886 to June, 1887.	175	2	2
„ 90 Associate at 10/6	47	5	0	„ Rent, Rates, &c.	50	7	5
„ 1 Society at £2 2s.....	2	2	0	„ Books and Maps in Library.....	7	5	9
			385 7 0	„ Sundry Expenses, Stationery, Cleaning Office, Coal, Postages, &c. &c.	68	18	0
„ Bank Interest		0	8 9				
„ Balance, Deficit carried to Deficiency Account....		0	8 1				
			£386 3 10				£386 3 10

GENERAL BALANCE ACCOUNT,

December 31st, 1887.

ASSETS.				LIABILITIES.			
	£	s.	d.		£	s.	d.
To Arrears of Members' Subscriptions	135	19	0	By Eight Life Membership Subscriptions in Reserve	84	0	0
„ Cash in Treasurer's hands	17	7	8	„ Sundry Accounts owing	236	11	11
„ Cash in Secretary's hands	68	18	1				
			86 5 9				
„ Balance as per Deficiency Account.....		98	7 2				
			£320 11 11				£320 11 11

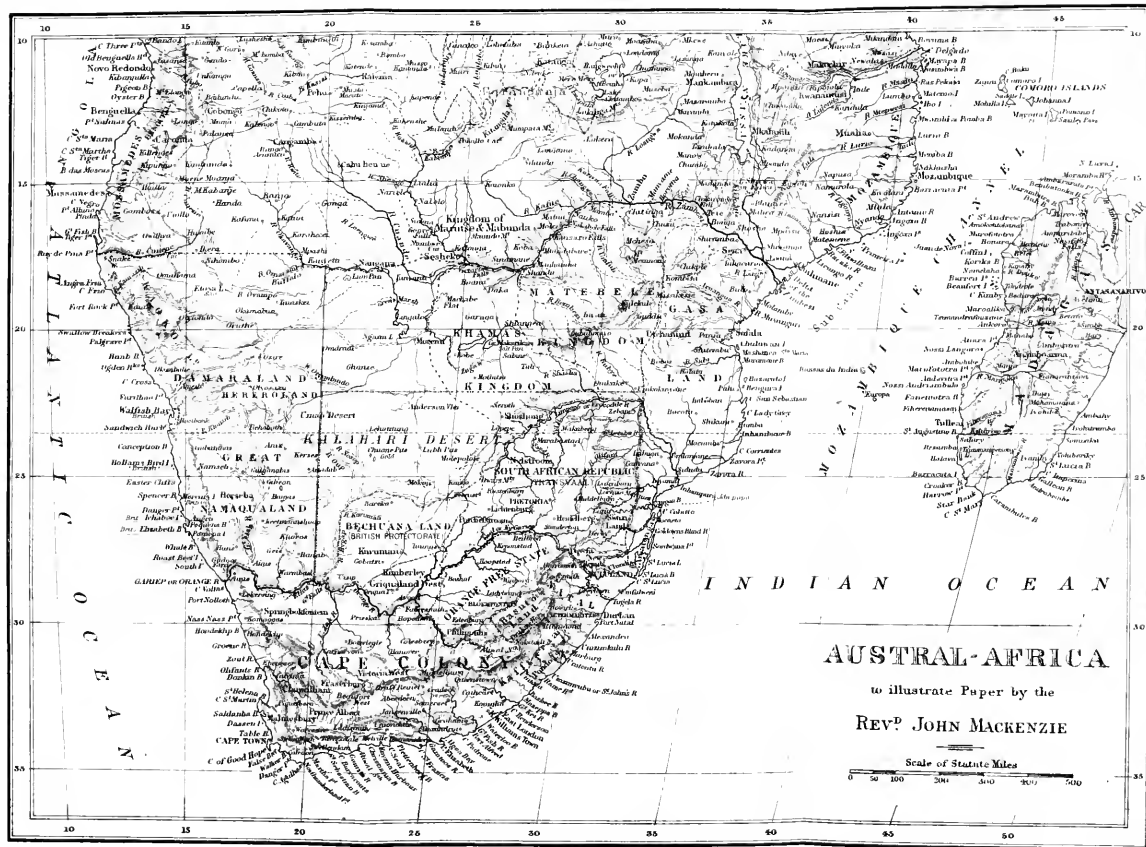
Examined and found correct,

(Signed)

THEODORE GREGORY, F.C.A.

J. C. BLAKE.

April 4th, 1888.



THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

AUSTRAL AFRICA: EXTENSION OF BRITISH INFLUENCE IN TRANS-COLONIAL TERRITORIES.

(See Map.)

BY REV. JOHN MACKENZIE.

[Addressed to the Members in the Memorial Hall, July 10th, 1888.]

I HAVE much pleasure in addressing an audience in Manchester on the subject of British interests in the trans-colonial territories of South Africa. You are naturally interested in a subject which refers to the opening up of a new and partially unexplored region of the world. This region has been ascertained to be valuable in itself for what it produces, and valuable also on account of the people who are already inhabitants of it. I know that, as intelligent citizens of the Empire, you take an interest in outside countries, not only on account of your commercial relationships, but also because your sympathies as Christians and as philanthropists have for years been extended to the inhabitants of Southern Africa—long before you were aware that those regions yielded gold, and produced cotton.

Some years ago I had the honour to address an audience in the city of London on the subject which is to occupy our attention to-day. Voices were then raised in behalf of a sound, and steady, and continuous Imperial policy in South Africa, which are now, alas! silent in the councils of the nation. The good Earl of Shaftesbury is no longer with us, with his untiring practical patriotism—keenly alive, not only to questions at home, but also to those which occurred abroad. William Edward Forster—strong, able, and disinterested—has also left us, and in his death the United Kingdom and the British Empire lost a clear-sighted statesman and a true-hearted patriot. Then another fellow-spokesman on that occasion—well-known as a London merchant, with strong colonial as well as philanthropic sympathies, on whom had been conferred the highest civic honours, Sir William McArthur—goes no longer in and out among us. The influence of these good men is not, however, lost to their country. Their example forms to you and to me a powerful stimulus as men and as citizens of a great empire.

VOL. IV.—Nos. 7-12—JULY TO DEC., 1888.

At the time to which I refer the affairs of South Africa had reached an unfortunate and dangerous crisis. Beyond the colonial borders lawlessness reigned supreme, reacting most prejudicially on every colony and state. The highway of our commerce northward was effectually blocked; while on the east and on the west inimical eyes intently watched our culpable inaction. Although few realised it at the time, the question which then hung in the balance was whether we should lose South Africa or rule it. Leave it alone and yet retain it was clearly out of the question. We decided to rule, and thus for the time averted the danger of losing the country. Had our decision been otherwise in 1884 we should have lost our hold on the whole country. You will please to remember that the problem was not one to be decided as between the Imperial Power and the colonies and the states of South Africa. It was a grave European question, for the right settlement of which, in the interests of this country, we were at that time indebted to our resolution to uphold our obligations there as the supreme power. It was also, of course, a South African question, but it is especially to be borne in mind that there was no local South African remedy for the evils which had there obtained for years. The Government of the Cape Colony regarded the question as one belonging to the Imperial Government, having reference to affairs transpiring beyond the colonial boundary. The Government of the Free State expressed its inability to act beyond its borders; and the attitude of the Transvaal at that time was entirely unsatisfactory. Thus, in 1882 and 1883 the position and powers of the Imperial Government in South Africa were plainly indicated, not merely by the petitions of the natives, but by the invitation of the European communities. The loyal and peace-loving colonists, of whatever nationality, felt the intolerable incubus of wild, unchecked lawlessness ranging itself under the leadership of rival native chiefs, and striding with bloodshed and pillage across the highway of commerce, paralysing trade. I well remember the down-hearted aspect of the colonists when I passed through the Cape Colony on my way to England in 1882. Imperial interest—Imperial assistance—how desirable, how necessary! But why tantalise men with what was to them only the dream of a visionary? They regarded themselves as deserted, and left to their fate.

It was in behalf of a British colony in such a hapless plight—in behalf of native territories, the owners of which craved for our administrative assistance, and in behalf of an open highway for British commerce into the interior of the country south of the Zambesi—that I last had the honour to address you. It is for those very objects that I again appear before you to-day. There is the utmost reason for directing present and urgent attention to the subject. The problem is still—Rule it or Lose

it. I am sorry to say the action of Her Majesty's Government on this subject has been far from satisfactory. I am not speaking as a British politician, but as a colonist, and as a humble well-wisher of the empire. Truth and justice, however, demand that I should say this, that it was the Liberal Government that in 1884 undertook British administration in Bechuanaland; and it is Her Majesty's present Government—wrongly and even fatally advised—that is exercising itself, not how to discharge the great Imperial duty which you undertook, but how to “get out of it,” and how to impose that duty and that responsibility on someone else. The action of Her Majesty's Government under present advice reminds me forcibly of the disobedient son mentioned in Scripture. The public judgment and conscience demand that Government should administer the affairs of native territories. “We go,” is the reply of Government, but they stop short half way: “We are doing it,” but they are doing nothing of the kind.

One word of personal explanation. Six years before the date of the meetings to which I have been referring—that is, in the year 1878—I began to bring before Her Majesty's Government the necessity which existed for facing and discharging our Imperial duties in South Africa instead of shuffling out of them. Since that time I have conceived it my duty and my special work to bring this matter before successive Governments and successive High Commissioners in South Africa, the subject itself having been my earnest study for over twenty years before I wrote at all. You will allow me to say that I had had exceptional opportunities of studying the question where it could best be studied—on the borderland where the races are meeting and commingling. I know the native chiefs and people. They are my friends. I know the pushing trader and hunter, the Dutch-speaking and English-speaking settler. They are also my friends; and many a time have I been called in to arbitrate between one white man and another in business disputes, concerning which a native chief could not pass an opinion; but these arbitrations were always conducted in the presence of the chief and with his sanction and authority. Living for many years on the borderland, I became deeply impressed with the conviction that, under Imperial management, the development of the country could go on without bloodshed. There was room for all—white man and black man as well. It has also been my good fortune to enjoy the friendliest intercourse with High Commissioners and with colonial politicians. Why do I mention this? It is my answer to anyone who may suggest to you that my connection with this question is a recent one, or that it has to do with personal affairs. I must condemn shirking and shuffling if I stand here at all; but I have nothing but pity for the poor shuffler, whether officer or Government.

I.—A GLANCE AT SOUTH AFRICAN COLONIES AND STATES.
CAPE COLONY.

It is not within the scope of this address to enlarge upon the products or politics of the settled colonies and states of South Africa. This, indeed, would be unnecessary, as many of you are well acquainted with the affairs of the Cape Colony, and others are intimately connected with Natal, while others, again, are in constant correspondence with the Orange Free State and with the Transvaal. We all rejoice in the return of a measure of prosperity to those communities. People will wear diamonds; and ostrich feathers, although ladies may pass them by for a year or two, are in themselves too beautiful to fall entirely into disuse. Improved sheep-farming will lead to improved wool, and there is no reason why the wool of South Africa should be second to any. As the South African grapes are richer than any others, it follows that South Africa is also bound to excel in all the commercial products of the vine. It cannot be said that the Cape has hitherto excelled in these departments; but here is just the legitimate field for exertion, with the fairest prospect of success.

The Cape Colonist, as he is to be found at his farm, and as many of you have seen him there, is a hearty, hospitable man—in general not very well-informed as to the outside world, and consequently somewhat at the mercy of local advisers, who may be better informed but are not always better disposed. These farmers often reminded me of the sturdy Scottish farmer of a past generation—I believe they have many characteristics in common besides Presbyterianism. Education is doing a great work in the colony, and rapidly raising public opinion into sympathy with European and American ideas.

As to Cape politics, I entirely agree with the remarks of Sir Hercules Robinson, made in London in 1884, and recently quoted in the *Times*:—

“Responsible government, he should say, as far as the Cape Colony proper was concerned, had been a complete success, notwithstanding the fact that the natives within the represented districts exceed the Europeans in the proportion probably of two to one. Where responsible government at the Cape had broken down had been in the attempt to govern extra-colonial native territories, such as Basutoland and the Transkei. It was too much to expect that the colony, when first started on the course of self-government, could at the same time take upon itself the administration of populous native territories beyond its borders. In placing extensive native territories under the government of the majority for the time being in the popular branch of a legislature in which these native territories were wholly unrepresented, the system has broken down. The colony has been obliged in consequence to restore Basutoland to the

Imperial Government, and if it could, in like manner, see its way to free itself, at all events for a time, from the responsibility and burden of the Transkei provinces, he should then look forward with great confidence to the future of the Cape."

Unfortunately, for the Imperial service our High Commissioner did not long continue to express those sound views. But it is well known that the late colonial ministry, of which Sir Thomas Scanlen was premier, were animated by this wise policy when they handed back the administration of Basutoland to the Imperial Government, and when Sir Thomas loyally offered to Her Majesty's Government cordial co-operation in carrying on the Imperial administration of Bechuanaland. This policy is undoubtedly supported by the intelligence as well as the loyalty of the Cape Colony. From personal knowledge I am well aware how anxious leading colonists are that, in the present circumstances of South Africa, trans-colonial affairs should be managed by the Imperial Government, and that the attention of Cape politicians should be confined to the development of their own vast territory and the prosperity of its inhabitants. They hold that it is in this way that the Cape Colony will be able to continue to maintain its own prominent place in South Africa.

As many of you are well aware, however, there are other Cape politicians who favour what may be called a policy of adventure in behalf of the colony. Their ideal state of things would be that the Cape Colony should dictate the policy and England provide the means necessary to carry it out. The present Cape ministry supply a fine illustration of wishing to choose the tune and yet not pay the piper. Some years ago the same men chose the tune as to Basutoland policy, but on that occasion Her Majesty's Government left them to pay the piper—a bill of some four millions. At that time they also found themselves deserted by the burghers of the Cape Colony, who declared that the Basuto war was unjust. In 1884 this ministry, through its premier, in a public speech in Capetown, called on the Imperial Government to assert its position as the supreme Government in the country. No sooner, however, did Her Majesty's Government consent to this, and the expedition was on its way, than two of those ministers hastened off to Bechuanaland to try to do the Imperial work themselves, and thus slam the South African door in the face of Her Majesty's Imperial Government. Never was the intelligence of a colony so indignant as at this remarkable step; and, as you are well aware, on this occasion the colonial ministers retired and the Imperial Government went forward and successfully performed its appropriate work in the native territory of Bechuanaland. Forgetting both the Basutoland and the Bechuanaland incidents, the Cape ministers came forward in their old style in 1885 with a magnificent offer to the Imperial Government with reference to Bechuanaland.

The Cape ministry conceived that they had the ability, while the Imperial Government had the money. They proposed, therefore, that the Imperial Government should pay to the Cape Government the sum of £50,000 per annum, and the Cape Government would supply the intellectual and administrative talent which would be necessary in Bechuanaland. In short, they would play the tune while England paid the piper. In justice to the Cape ministers, however, it has to be stated that a proposal so degrading to the Imperial Government was largely owing to the singularly misconceived attitude of our High Commissioner at the Cape, who for months had incessantly urged upon the colonial ministers to help the Imperial Government to "get out of" Bechuanaland. I need hardly say that this offer of intellectual and administrative assistance was declined by the Imperial Government—that is to say, it declined to pass a vote of effete-ness upon itself. Since that time I have noted that Sir Thomas Upington has advocated the extension of Imperial administration to the Zambesi, in common with other leading colonists.

We occasionally hear what I must call the thoughtless remark that England should leave "South Africa" to its self-government. If these advisers used the expression "Cape Colony," instead of South Africa I could understand what they mean, and would be quite willing to grant all that they ask as to the self-government of the colony. This, then, is a fine instance in which the old rule in dialectics must be insisted on: define your terms. If by South Africa you mean the Cape Colony, why not say so? In that case, however, you have still left unsettled the whole question of this paper; for the native territories are beyond the Cape Colony. If you mean to include by the expression, "South Africa and its self-government," the self-government of the other European communities, I concede what you ask in each case—self-government—and still the great trans-colonial territory beyond all their borders remains without a government and without administration. If you say, "Will it not be enough to have our Imperial fleet on the South African coast?" I answer, "No." An Imperial fleet is effectual in the case of an island, but is totally inapplicable to the condition of South Africa, with self-isolating, unfriendly, if not antagonistic elements within the country itself. In South Africa our coast-line is not our whole border; and it has been proved that without Imperial intervention and administration Imperial as well as Colonial interests suffer in native territories beyond the northern border of the colony. Then I pray you to remember this, that whoever occupies, controls, and possesses these trans-colonial territories which have been offered to the Imperial Government, and with which we have hitherto only trifled, will thereby possess political predominance and influence in South Africa. Therefore, to

advise the Imperial Government to retire from trans-colonial South Africa at the present time is as unwise as it is unpatriotic. When given by Englishmen this advice is begotten in ignorance, and can appeal only to ignorance. It is what the loyal colonists at the Cape call desertion, and deprecate above all things. To the lover of the empire, as well as to the British merchant, it is to advise us to commit suicide.

Those who give this fatal advice are ignorant of the fact that our whole position in South Africa has been gained by wise action, and our losses have always come by letting things drift. What opposition there is to the Imperial Government has been begotten by our apathy and our carelessness. If the Afrikaner Bond is anything more than an agricultural society to-day, we owe it to our Imperial vacillation and general desire to "get out of" things. Our action in Bechuanaland in 1884-85 went far to change the Bond into a peaceful and loyal agricultural association once more, a process which will certainly be perfected by our quiet administration of trans-colonial territories.

Imperial policy cannot ignore the presence of unfriendly and even antagonistic agencies in South Africa, which, more active elsewhere, are able to influence the politics of the Cape Colony itself. Their charge against us is our vacillation. Most colonists make this charge honestly, and desire its reform; a minority use it as a weapon against us, in order to alienate men's hearts from us. They have no argument to offer against our Imperial administration of native territories. Their opposition is confined to hint, dark inuendo, and threat. This was so in 1884; it is so still, but in a much-mitigated degree. And why do they oppose Imperial administration in native territories? Because that quiet and helpful Imperial action is certain death to all their hopes. And what are those hopes? As recently expressed in a Continental paper, their hope is that the flag which is now flying at Pretoria may yet fly, not only at Bloemfontein, but also at Government House, Cape Town. This, we are told, is to be brought about by "pressure of circumstances, without shock or shot." In other words, these agitators believe that they can bounce us as an effete people to do what they want. It seems to be an article of their faith that we shall always give up under pressure. Gentlemen, the policy of Pretoria must be met by the quiet, friendly, but firm Imperial administration of trans-colonial South Africa.

My glance at the Cape Colony would be incomplete if I did not direct your attention to a peculiar phase of antiquated colonial thought, which has an important practical bearing. Is there anybody among us to-day who still thinks that the "Southerner" view of serfdom and domestic slavery could exist and flourish in face of an open New Testament and a literature saturated, as is the English literature, with the code

of our Lord and Master? Either the New Testament and its teachings must be torn from the hearts of men, or the tenets of those who were known as "Abolitionists" must prevail in South Africa as elsewhere, however long and bloody the struggle. Now, owing to the prevailing ignorance of events taking place in the great outside world, the "Southerner," in sentiment, in South Africa, is, in many cases, ignorant of the fact that the upholding of his views has already been undertaken by brave and masterful men in America, and has been there lost for ever. The elements, however, of the great American contest are, I must inform you, present in South Africa to-day, and even in the Cape Colony. The English colonists, and, I fully believe, a majority of our Dutch-speaking fellow-subjects, are "Abolitionists" in sentiment. As to the rest of the population—the holders of the "Southerner" view—they may be in a minority in the Cape Colony, but I am afraid they are in a majority among the other communities. As to the views themselves, let me quote the recent utterance of the secretary of the Afrikaner Bond, who, in his place as a member of the Cape Assembly, is reported to have said:—

"The native question was the question of the future. In the Cape Colony there were two classes of whites—the real colonist, the sons of the soil, and the Europeans who came from abroad; and between these two sections stood the natives. The colonists had always looked upon the natives as their natural enemies. They did not look upon them with contempt, but only as their servants. Europeans, on the contrary, put the blacks on the same level as the whites, and this was distinctly against the views of the colonists, who had found by experience that that was impossible. . . . The native stands far beneath the white people, and ought to be kept there."

Now, has it ever occurred to those who with a light heart suggest that Britain should leave South Africa—in order that, as they say, Boers, and blacks, and British may fight it out—that by that advice they are planning a colour and race feud and war at one end of a vast continent—a deadly and murderous struggle, which would be destined to travel northward with the European race? If ever advice was tainted with the stain of blood-guiltiness, this advice of speedy Imperial withdrawal is so stained. Of course, I charge those who give it with nothing worse than great thoughtlessness.

Gentlemen, every thoughtful student of the question must admit the great work accomplished by England in South Africa in the past, as a moderating influence between the races. The apple of discord in the United States has hitherto been placed out of the way of her colonists in South Africa by England. Having granted self-government to the colony, England can no longer influence directly, except by moral influence, internal colonial

affairs. But, thank God, it is still possible for England beneficially to influence South Africa in this matter of righteousness without in any way interfering with colonial self-government. I specially beg your attention to the fact that England, by remaining in direct control of trans-colonial territories, will, by so doing, be able to introduce more and more educated Europeans into these countries, while education does its beneficent work in the colonies and states, and raises every class of our fellow-subjects in South Africa—so that when the Imperial Government does retire from direct control of affairs the South African community may have travelled forward in thought and sentiment, and become assimilated with the thought of Europe and of America on social questions. Here, therefore, is a great and beneficial work which England has still to accomplish by remaining at her post in trans-colonial territories. Alas for the nation which, calling itself Christian, has a glorious opportunity like this presented to it, and refuses to embrace it!

We read how Aaron's rod swallowed up the other rods. There are some sanguine Cape Colony politicians who would lead us to believe that the Cape Colony is to absorb all the other communities of South Africa. Indeed, one or two Cape orators—not at all representative men—talk as if the process of deglutition had taken place. It was only recently, however, that one of our leading Englishmen—a statesman and diplomatist—speaking on this question, remarked, “At the present time it would be a profound mistake to confound the Cape Colony with South Africa.” At present, the only symptom evident to the spectator is the desire to swallow exhibited by those local politicians—an eagerness which is very noticeable—but the longing to be swallowed is not as yet apparent in any of the other communities. The recent Conference on Customs, most gratifying in itself, tends rather the other way—as mutually recognising and developing the separate rights and standing of one another by the various communities. As the Imperial Government has resolved to retain under its own management the vast unoccupied tracts of Western Australia, although there are colonies of undoubted loyalty in its close proximity, so it will give no offence to our Cape Colonists that the Imperial Government retains trans-colonial regions in its own hands at the present time. Most British politicians sympathise with the hope of confederation recently expressed by Sir John Brand, but if it is to be unification, as some Cape Colonists expect, Her Majesty's Government will wait with interest the beginning and progress of the operation of swallowing and assimilation; and when the European states have become united into one British colony, the question of trans-colonial South Africa—still in Imperial hands—will then admit of easy settlement.

Our subject to-day has to do with the “Scramble for

Africa," as it has been called, which is a scramble among the European Powers. I think Her Majesty's Government might insist that greater attention should be given to the wishes of the native owners of the various countries. The idea of the "scramble," as I understand it, does not include imposing or forcing foreign protection where it is not welcomed or desired. But it is in connection with this competition, friendly or unfriendly, that the southern highway of our African commerce must remain under Imperial control. It is our happiness to be supported there by our colonists, and as commercial enterprise paves the way for colonisation, the opening up of the country will be beneficial to them, and indeed to all South Africa. This was fully recognised by the Cape Colonists in 1884. It is the policy of our enemies and their hodmen to represent that the Imperial Government, as administering native territories, is unwelcome in South Africa. That the opposite of this is the truth was abundantly shown by the enthusiastic welcome given to the Imperial forces under Sir Charles Warren, and by the fact that that force was promptly joined by colonists of all nationalities, and, indeed, by men hailing from the states as well. Please to remember that the colonial welcome and the colonial support were specifically for the upholding of the Imperial Government in the work of establishing order and Imperial administration in native territories.

NATAL.

As to the colony of Natal—so rich in itself, and so distinguished for the ability of its public men—its trade, to my knowledge, has found its way northward, and competed, in the far interior, with that of the Cape Colony. The speedy development of its railway system, the opening up of new fields for its interest in the new republic of Zululand, in the Zululand protectorate, in Swaziland, and Amatongaland—these are matters of fair ambition for the colonists of this spirited colony to cherish, and matters, as I trust, in which they will have the co-operation of the mother country.

FREE STATE.

The prosperity of the Free State has very much depended on the devotion and loyalty to his people of the President of that republic. Education has been encouraged in the Free State, so that the ordinary State burgher is probably fully as well instructed as the Dutch-speaking farmers of the Cape Colony. There were, till recently, repressive native laws in the Free State, which were only practicable because on every side of the State there were countries where greater freedom obtained. Education, however, will gradually rectify this defect.

TRANSVAAL.

The attitude of the Transvaal is not so well understood in this country as it deserves to be. The bulk of the European population is made up of the same material as the Free State, only that ignorance of the outside world, and consequent prejudice and narrowness of mind, still characterises too many even of the prominent burghers of the Transvaal. You are well aware that the object of the Transvaal leaders, a few years ago, and of their astute advisers, was to close in Great Britain and the Cape Colony on its northern border, and thus secure for themselves ascendancy in the interior. The delegates came to this country, and laid their claims not only before Her Majesty's Government but before the British public, through the press. You are aware that, after a full hearing, they lost their case: neither the Government nor the public approved of their position or their arguments. Relieved from the temptations of their ambitious policy of adventure and aggression, the Transvaal deputation received an important addition to their territory, and a large remission of their debt, so that in the highest sense their mission to England was successful. The great work of ruling their own rich country was imposed upon them without interference from the Imperial Government. Since that time a great influx of Europeans and Cape Colonists has taken place into the Transvaal, owing to the extraordinary richness of some of the gold mines there. I am sorry to say that the advisers of President Kruger at this great juncture recommended that greater difficulties should be put in the way of the naturalisation of foreigners. In the same spirit President Kruger lately visited Sir John Brand at Bloemfontein, and proposed that an alliance, offensive and defensive, should be entered into between the Transvaal and the Free State. President Sir John Brand declined this overture, although it was accompanied with the offer of a large annual subsidy from the richer Transvaal to its poorer neighbour. Sir John Brand, in explaining to his own burghers his reasons for refusing to enter into such a treaty with the Transvaal, says it was his sincere belief that such an alliance was not for the true welfare of the Free State. He adds:—

“I could not for the life of me see where the enemy was to call for such an alliance. I felt that it could not possibly be the men who had brought skill and capital into the Transvaal against whom such an alliance was needed, for I felt that men who had ventured their all in the search for gold were not the sort of men who would risk what they had to put into the ground in raising the standard of rebellion against the law of the land from which they hoped to reap wealth. Neither, as far as I could see, was there any appearance of any other enemy whose machinations would necessitate an alliance offensive and

defensive; therefore I advised our commission to decline the same, and offered in lieu thereof a confederation of the two republics. One of my reasons for advising this course was that confederation must come sooner or later, and I feel that it cannot come at once. I mean by this that the whole of the states cannot at once be brought to the same mind."

Well might President Brand wonder as to the enemy against whom the alliance was to be formed. English colonial statesmen can have no difficulty as to the Power against whom the alliance was designed; no progressive Austral African, of whatever colony or state, can have any hesitation as to the spirit, the doctrines, the policy, which underlay the proposals of President Kruger—proposals to which he was pressed by his advisers. This course of action was further emphasised by the refusal, on the part of President Kruger and his Government, to join the rest of South Africa in the Conference on Customs. The attitude of the Transvaal is thus peculiar to itself, self-isolating, out of harmony with the rest of South Africa and with Great Britain. The spirit which animates the advisers of the President is accurately portrayed by some remarks in the Government organ at Pretoria concerning the colony and protectorate of Bechuanaland: "The English flag," says this writer, "has been waving on our western boundaries, a constant menace and insult to our state." As a matter of fact, the administrator of Bechuanaland had met President Kruger on the border and exchanged the most friendly speeches with him. And yet there is a real sense in which certain advisers and "good friends" of the Transvaal Government regard the helpful, stimulating, and beneficial presence of Her Majesty's Government and Her Majesty's flag outside their border as an insult and a menace. If it is meant that, being so near as the western border of the Transvaal, there is the possibility of our passing over the border and again entering the country, there need be no such fear on the part of the Transvaal rulers or people. England is content with her helpful work on the commercial highway into the interior. She has no wish to interfere in the internal affairs of the Transvaal; but it is not too much to ask for similar non-interference with the affairs of a British colony and protectorate, which was undertaken not only in the interest of British commerce but in the interests and at the express request of the various communities of South Africa.

II.—TRANS-COLONIAL NATIVE TERRITORIES.

It was necessary to glance at the various European communities at the Cape in order that you might have a correct idea of the bearing and proportion of the Imperial work in trans-colonial South Africa. You will observe that we have inde-

pendent states, foreign and competing influence, with a foothold in the country. These states, however, like our own colonies, have their boundary lines, beyond which, in 1882 and 1883, they did not see their way to go in behalf of the general peace of the country.

We now come to consider those vast regions of trans-colonial South Africa which, by the desire of the natives, and of the European communities also, form the legitimate field for Imperial administration.

THE TRANSKEI

According to our present High Commissioner, in 1884—according to one of our colonial political parties headed by Sir Thomas Scanlen—the Transkei territories should have formed an Imperial administratorship. There can be no doubt that this would have been more appropriate in every way than the present arrangement, by which, through the desire of the present adventurous colonial ministry, the expressed opinion of the High Commissioner has been over-ridden, and the Transkei has been annexed to the Cape Colony; so that the Colonial Government now attempts to administer constitutional government within the colony proper, and paternal or personal government in the Transkei territory. It need not be matter for surprise if the colony should, at some future time, ask to be relieved from this disproportionately heavy responsibility, but in the meantime the Transkei native territory is a local colonial responsibility.

PONDOLAND.

Pondoland has been more or less connected with the Imperial Government since the time of the Chief Fako. The Pondo chief and people have for some time desired to come under Imperial administration. I remember meeting a deputation to the High Commissioner, in Capetown, in 1884, on an errand of this nature. I am not aware of any difficulty that then stood in the way of this, except that the Cape ministers probably wished to extend their border still further eastward; and that the High Commissioner being also Governor of the Cape Colony, owing to the wishes of the ministry, had not proposed an Imperial protectorate. There is said to be a considerably active German interest in Pondoland. It is also stated that there is some local desire to be joined to Natal rather than to the Cape Colony. The value of the services of an Imperial Governor-General or High Commissioner in cases such as this needs no enforcement from me. The present anomalous condition of Pondoland lies at the door of the Imperial Government, and an early settlement should take place. Sir George Baden-Powell has proposed that Pondoland, the Transkei, and Basutoland; should be formed into one administratorship under the Imperial Government. What is quite certain is that these questions merit more attention than

they have received; that this large and populous region is as distinctly a native territory as any region in India; that there are no better customers to our merchants than these coloured subjects of the Queen; and that a coherent and intelligent policy should be adopted to establish order and good government among them.

BASUTOLAND.

As to Basutoland itself, most of you are familiar with its history—a history which emphasises the necessity for the Imperial administration of native territories in the present condition of South Africa. The first reluctant annexation of Basutoland was the complement of our previous abandonment of the Orange River Free State. I agree with those who say that that annexation should have taken place earlier. It is unquestionable, however, that the Imperial protectorate was in every way satisfactory under the able management of Colonel Griffiths. Had it been in India, the Basuto tribe would have been allowed to pursue its prosperous course under Imperial administration. But we cannot persevere in sound Imperial policy in South Africa: we must try to “get out of” everything, and we “go out of” Basutoland, handing the tribe over to the Cape Colony, with some £10,000 in the local exchequer, but without any stipulation whatever as to the future status of the country. You know the history of the attempt to disarm this tribe, and the futility of the attempt. You remember that on this question the Cape Ministry found themselves at once without the support of the Imperial Government and of the burghers of the Cape Colony, who declared the Basuto war to be unjust. In these circumstances the colony requested the Imperial Government to take back the Basuto tribe under Imperial administration, proffering assistance, if necessary, towards the administration of the country. In 1884 a sullen and demoralised tribe was handed back to the Imperial Government, which, however, under the patient and able care of Sir Marshall Clarke, has made some progress towards a return to the animated and intelligent loyalty which characterised the tribe when first under Imperial rule. Surely no one could desire a more striking object-lesson on the value of the Imperial management of native territories, and the disastrous result of the Imperial attitude in South Africa,—How to “get out of” every responsibility. Indeed I should not be surprised to hear that we were again finding ourselves unable to let well alone in Basutoland, and that we were exercising ourselves with the question how to “get out of it.” Every merchant will be against the repetition of such folly. The Basutos are consumers, and they are producers. They supply the neighbouring countries with grain; horses and cattle are also extensively reared; and Basutoland contributes largely to the labour market of the colony, especially the Diamond Fields. There is just one thing still wanted

in Basutoland: it is the return of the feeling of complete confidence in the Queen's Government which unfortunately has been lost. Let it be understood that we are content to go on administering the affairs of Basutoland as we administer the affairs of a tribe in India, and all uneasiness will disappear from the native mind, and even greater prosperity will be the result.

SWAZILAND.

We have heard a good deal recently about Swaziland and its gold mines; Swaziland and its cattle-grazing disputes; Swaziland and its Boer advisers and its English advisers to the King. The Swazi people are our ancient and tested allies, and have fought alongside our men in the field. In 1884 it was thought enough to guarantee the independence of Swaziland by the convention with the Transvaal. Neither the Transvaal delegates nor the Colonial Office could have regarded this as a final settlement of the affairs of Swaziland. If in the exercise of its independence Swaziland has asked for the protection of England, there would not seem to be any reason to prevent our acceptance of that protectorate. How it is supposed—if it is supposed—that an effete chieftianship, over-advised by white men, not one of whom occupies an office of Imperial responsibility, can adequately govern Swaziland in present circumstances, is to me a profound mystery. But it is nobody's business in particular. Her Majesty's Imperial Government has no officer in South Africa to give undivided attention to the general welfare of the country as a whole; and the Governor of the Cape Colony, speaking in his capacity of High Commissioner, has lately expressed the view that Swaziland should be joined to the Transvaal! With reference to this astounding piece of advice it appears to me that no man in business ever expressed such a view concerning his own interests or prospects; no confidential correspondent of a mercantile firm ever made such a proposition. The advice is not in the interests of the Swazi people, or of British trade, or of British colonists, as the recent protest on the subject from the Natal Legislative Council abundantly shows. The advice is dated from Capetown, but it is distinctly in the interests of Pretoria, and in neglect of our colony of Natal and of British interests in South-Eastern Africa.

ZULULAND.

An Imperial protectorate over Zululand was thought of in 1884, when Bechuanaland was taken under the Imperial care. But the Governor of the Cape Colony, in his capacity of High Commissioner, had before this date succeeded in devolving all responsibility for Zulu affairs upon the Governor of Natal; and this officer was not present in London in 1884 to press the claims of a Zululand protectorate simultaneously with that of Bechuana-

land. Not undertaken in 1884, the protectorate of Zululand might still have been advantageously established in 1885, under the auspices of the Special Imperial Commissioner, Sir Charles Warren—Zululand and Bechuanaland forming, in fact, parts of the same problem. No such recommendation was sent from Cape Town, but instead of this, as you are aware, Sir Charles Warren and his expedition were hastened out of South Africa, in a way which I hesitate not to say was unpatriotic and blameworthy. Zululand was portioned among lawless men, whose actions, meanly enough, were not interfered with, till they came in sight of the Indian Ocean, and proceeded to lay out a town near St. Lucia Bay. Long before this the Imperial Government should have intervened. The claims of the white levies of Dinizulu might have been recognised wholly or in part, but to have left Zululand unattended to for years, as we left it, will always remain a blot upon our Imperial administration. It occasioned the utmost surprise in this country when it was announced that the new republic had been recognised by Her Majesty's Government as a separate and independent state in South Africa. With reference to the future of the new republic of Zululand, and of Zululand itself, it seems to me that the first concern of the Imperial Government should be for the establishment of order in the country itself; and the next, the benefit and development of the British Colony of Natal. I regret that recently the Legislative Council of Natal should have found reason seriously to complain of the action of the Governor of the Cape, in his capacity as High Commissioner, while giving what the colonists regarded as advice distinctly disadvantageous to the Colony of Natal.

AMATONGALAND.

Amatongaland owes its importance to its position, as well as to the richness of the country and the generally industrious character of its inhabitants. Knocking at the door of the Colonial Governor of Natal with a request for English protection brought them no favourable reply till messengers were despatched to England itself on the same errand. Then the local overtures which had long been neglected were all at once attended to, and a treaty signed between the Amatonga tribe and the Imperial Government. Considering the importance of Amatongaland and Swaziland, it has appeared to a great many people on this side of the water that the action of our Government with reference to these countries has been of an excessively feeble and negative character, and quite unworthy of the standing of the Imperial Government. Its only explanation would seem to be that such affairs, however important, have no officer to attend to them in behalf of Her Majesty's Government, and are regarded as outside work by Colonial Governors—troublesome excrescences upon their proper duties.

BECHUANALAND.

I now come to Bechuanaland and regions north of the Limpopo river. You will remember—as I do—how reluctant Her Majesty's Government was to take action concerning Bechuanaland in 1884. In the end, ignorance and misconception were removed, and the duty became plain to the English people and the English Government, and the Bechuanaland protectorate was established. I cannot give you an adequate idea of the scorn and distrust with which this Imperial action was received in the colony, and especially among professional politicians in Cape Town. Their distrust of you was very deep and very sincere. Well, the distrustful ones—official and non-official—were speedily roused by the outburst of earnest feeling in the Cape Colony itself, which was as earnestly responded to in this country, and the Bechuanaland expedition upheld the Bechuanaland protectorate. And here I feel I ought to recall a speech made in his place in the House of Commons by the Right Hon. Joseph Chamberlain, M.P.—a speech which was much appreciated in South Africa. It was to the effect that while entertaining the most friendly feelings towards all the inhabitants of the colonies and states, the Imperial Government felt bound to uphold peace and order on the highway to the interior, and that it would spend its last shilling in doing so. These words, from a minister of the Crown, cheered the orderly and peace-loving colonists, and were as good as a large reinforcement to the little army which entered Bechuanaland under Sir Charles Warren.

As a certain chemical substance added to a muddy glass of water causes all the impure particles to sink to the bottom, and the pure water is fit for use, so the addition of the Bechuanaland expedition to the troubled South Africa of 1884, under an Imperial officer friendly towards every local government and state, but unconnected with any, secured the peace of the country and the supremacy of the Imperial Government in the great highway of our north-going commerce.

Nor was the expedition unattended with other competing efforts. An expedition of German gentlemen, well supplied with scientific instruments (but, of course, merely as a hunting excursion), reached Shoshong some time after Sir Charles Warren had visited the chief Khame, and announced to him that the Queen's protectorate had been extended to him. Report had it that the gentlemen to whom I have referred had planned to visit the country to the north and north-east of Shoshong, and to go as far as the Zambesi; but as officers sent by Sir Charles Warren had preceded them, their course was directed to the north-western districts, in which, however, they do not appear to have succeeded in making any arrangements with the native tribes. The friendly message of Sir Charles Warren to the chief of the Matebele was responded to in a similar spirit by Lobingula.

In South Africa the prophets of evil were all confounded by the results of the expedition, which included not merely the pacification of Bechuanaland and the opening of the country to the north, but the re-establishment of confidence and a feeling of security throughout the whole of South Africa. Imperial administration had taken the place of the blustering freebooters, and Austral Africa north of the Cape Colony was saved to England and to the loyal colonists of South Africa—at least for the time.

RAILWAY COMMUNICATION.

In the construction of railways the Government of the Cape Colony has shown considerable energy and intelligent concern for the interests of the colony. There are three main lines, starting from Cape Town, from Port Elizabeth, and from East London, each route seeking the northern frontier of the colony.

Just as it was natural for the representatives of these colonial districts to push the claims of their respective districts before the Cape Parliament, so it was natural for Natal to endeavour, according to its means, to push a railway into the interior, so as to secure a share of the trade of the south-east of the country. In this light it is also quite natural for the advisers of the Transvaal Government to seek to take advantage of their proximity to the ocean at Delagoa Bay, although in order to reach the bay they have to pass through foreign territory. I say advisedly that the Delagoa Bay movement in the Transvaal is a project of certain advisers of the Transvaal Government, rather than of the old-world burghers themselves who are at the head of affairs, for gold and gold-seeking, railways and railway-making, are highly distasteful to the majority of that antiquated section of the burghers to which President Kruger belongs. Listening, however, to what they have regarded as good advice, and allured by the notion of that pre-eminence over their brethren in South Africa for which the Transvaal has so long schemed, they have overcome their repugnance to the iron horse, and entered into certain arrangements for the making of a railway to meet that part which has already been constructed in Portuguese territory.

There are certain stipulations in connection with those arrangements which are probably not calculated to promote the eventual prosperity of the Transvaal itself, as they do not seem to have been conceived in a spirit friendly to English commerce. But in so far as the Transvaal, in this railway affair, is acting within its rights as a republic, in so far must its action be respected by other Powers. Not only so, but in so far as geography decides in its favour, we must, of course, submit to the formation of the world as we find it. It is said, however, that there are so serious counterbalancing difficulties in construction as to leave full scope for alternatives. It would appear that Natal and the

Imperial Government together have more than one string to their bow in opening up South-East Africa to British commerce.

But the true and effectual answer to Delagoa Bay lies with the Imperial Government, as administering the colony of Bechuanaland, and with the intelligence and enterprise of the Cape Colony. Our present main trunk northward railway has its terminus at Kimberley. Now England has retained for our commerce the open highway into the interior beyond. But without an extension of our railway northward, with railways elsewhere and in foreign and competing hands, our open highway would become of comparatively little value if trade were diverted elsewhere. The imperial answer to Delagoa Bay, as concerning the trade of the north (the chief future trade of Austral Africa), is the construction of a main trunk railway northward from Kimberley through Bechuanaland. President Kruger and his advisers have certain ideas as to the local trade of the Transvaal. It is for them to say who shall and who shall not enter their state by a railway system, whether connected with the Free State, the Cape Colony, or Natal. But it is for all the rest of South Africa to encourage and further as speedily as possible a line of railway which shall secure for British colonies the trade of the interior. I feel certain that a railway entering Bechuanaland from the south would achieve for that fine country what similar railways have done everywhere in America, and in the Cape Colony also. Where would the Cape Colony have been in recent competition for the trade of the gold-fields but for its railways? Therefore, whatever local arrangements are made for securing a share of the trade of the Transvaal for the colony of Natal and the Free State and the Cape Colony, in competition with Delagoa Bay, no time should be lost in laying down a dominating north-going railway through the colony of Bechuanaland, so that the trade of the richest country in Austral Africa, the veritable Ophir of the olden time, with its gold and its iron, its cotton and its rice, may be secured for English commerce and for our fellow-subjects in South Africa.

There is another aspect to this question. Ask any British soldier concerning this main trunk railway northward, and he will declare it, from his point of view, to be invaluable to the Imperial Government and to the Cape Colony, and absolutely necessary for the establishment of British interests in those regions.

In those happy days to which I look forward, but which may not come soon, and will not come at all without intelligent and continuous effort on the part of the Imperial Government, when it will be able to hand over its responsibilities as a general Government to a Confederated Dominion of Austral Africa, this main trunk railroad, which will have been one of the great factors in bringing about the consummation, will be one of the matters which will be thus transferred.

III.—PLACE AND WORK OF THE IMPERIAL GOVERNMENT.

Englishmen have studied India, its languages and its people, and Englishmen successfully administer the affairs of that immense empire. Englishmen have failed to administer successfully the affairs of South Africa, because no serious study has been bestowed on the subject. We have never set ourselves to understand our position and our duty there. We have never studied the people or their language—even our colonial magistrates were often ignorant of the Dutch language. Our attitude towards India has been how to administer it. Our chronic attitude towards South Africa has been how to “get out of it,” how to shirk or shun our responsibility there.

We have never studied what may be called the elementary laws of population in South Africa. There the white man naturally looks northward for ivory, ostrich feathers, minerals, land, and home. All these things are found by him there. The black man, on the other hand, looks southward, seeking a greater degree of personal freedom; and breaking away from tribal control finds in the white man's country plenty of work and often a home. These streams of population are constantly flowing. They have nothing to do with the roving character of any nationality. This movement among Europeans was not caused by the emancipation by England of the slaves in the colony. The movement was then an old one—that event only gave it an impetus. Looked at by statesmen, these strong tendencies would not be considered evil but good. The white man needs cheap labour: the southward movement of the natives supplies it. The splendid country to the north invites not only the missionary, but the hunter, the explorer, the miner, and the colonist. There is place and there is work for all in the north. But instead of viewing the matter in this light, we have in turn tried to drive back the wave of black men, but have never succeeded; and we have endeavoured to arrest the progress northward of the white men, but have been equally unsuccessful. My contention is that we should control both of these movements for the good of the whole country. Our greatest fault, however, has been our ignorance. I, myself, was told by a gentleman, in London, in 1858, who certainly ought to have known better, that Delagoa Bay and Algoa Bay were one and the same place. I believe a department of the public service is responsible for the opinion, which was communicated to South Africa, that a chaplain holding service at King Williamstown in the morning might surely be expected to do duty in Natal at a later hour in the day. So great was our ignorance, that when the colonial farmers left the country in large numbers and settled in the Free State and the Transvaal—one reason officially given for their abandonment there was that the countries lying

to the north were quite unfitted for the residence of Europeans, and that the farmers would all be compelled to retrace their steps to the Cape Colony!

Now I cheerfully admit that our knowledge of South Africa has increased of late years. I am not here to-day to complain either of the wrongness of public opinion in this country concerning our Imperial duty in Southern Africa, or of the feebleness of its expression in the public press in recent years. On the contrary, I am satisfied that sound views are entertained on the subject, and that these views are not confined to one political party. But what I wish to lay clearly before you is that these views of Imperial policy, intelligently formed and strongly expressed, are not being carried into effect at the present moment in South Africa. As I have already said, I have no hesitation in asserting that on this subject there is a distinct antagonism between public opinion and public sense of duty on the one hand and the actions of our officials in South Africa on the other. I feel that I am not mistaken when I say that since 1883 and 1884 the steady public opinion of this country has demanded the upholding of law and order in native territories in South Africa, controlling their settlement by miners, colonists, and others, on terms equitable to the natives and to the Imperial Government. Englishmen see that trans-colonial Austral Africa is worthy of our attention, and that we should administer its affairs and preside over the development of its resources. Such was and is the public wish, and the public sense of duty and responsibility. Now, how has this been carried into practice? While the voice of public opinion says, Let us administer, the attitude and the policy of the Imperial Government is still, How shall we "get out of it"? It was so in 1884, when I tendered my resignation as a British Commissioner, and when our Imperial administration in South Africa had collapsed like a tent when the mid-pole is removed. You in this country, and the loyal colonists in South Africa, together raised the fallen tent of Imperial administration in 1884. German inquiries at that time acted as a stimulant, and the protectorate was extended northward and westward, and Sir Charles Warren was requested to assure Khame of the protection of the Queen, and to take steps to see that this was accomplished. This duty was performed during an interesting visit made by Sir Charles to Shoshong, when treaties were signed by Khame and other powerful chiefs. Sir Charles was asked to draw up a scheme for the administration by the Imperial Government of North and South Bechuanaland. Sir George Baden-Powell, at Sir Charles Warren's request, drew up another scheme, and both were forwarded to the High Commissioner and to Her Majesty's Government. They were sent home, however, with adverse criticism by the High Commissioner, who put in a scheme of

his own, which did not place Bechuanaland in the position of a Crown colony—which made the Governor of Cape Colony—not the High Commissioner—to be Governor of Bechuanaland—thus proposing to spend Imperial money in Bechuanaland, guided by colonial policy, and which placed local Bechuanaland affairs under a chief magistrate, who also acts in a subordinate capacity as administrator. After considerable hesitation on the part of Her Majesty's Government, the Imperial policy of administration demanded by public opinion in this country, and welcomed and upheld by the leading and most intelligent colonists in South Africa, was given up for the makeshift and temporary scheme of the Governor of the Cape, whose leading idea is how to get the Imperial Government "out of" Bechuanaland. And as a matter of fact our present policy in Bechuanaland is based on a calculation made by the Governor of the Cape, in the supposed interest of the Imperial Government, as to how long it will take him to get the Imperial Government "out of" Bechuanaland. Now this policy is based on a profound mistake. The Imperial interest is not to "get out of" Bechuanaland, but to administer its affairs as Englishmen well can do, for the good of the country itself, for the good of British trade, and in the true interests of the Cape Colony.

I am sorry to have to point out that Her Majesty's Government has been rather at a disadvantage as to reliable information in connection with North Bechuanaland. It is not unreasonable to expect that at least the geography of the question would have been pointed out, and that Her Majesty's Government would have been informed officially that the territories of the chief Khame (announced at Berlin to be under our protection), do not terminate at the 22nd degree of latitude, but extend to the river Zambesi. Our High Commissioner, on the contrary, has emphasised everything which he could find against a region which contains within it the most desirable part of South Africa. In his view our protectorate of Khame must be regarded as a mistake, for it was undertaken by the Imperial Government over a country hundreds of miles north of the Molopo river, which, according to the present representative of the Imperial Government in South Africa, is the terminus of British interests and British influence. Thus, while you on this side have been supposing that British influence was being extended over valuable regions, to occupy which we had been invited by the native owners, Her Majesty's Government has been corresponding with a gentleman at Cape Town engrossed with the every-day details of the governorship of a great colony. He reports to Her Majesty's Government that British interests do not extend beyond the Molopo river. One could understand it if the remark had been that the interest of the Cape Colony, of which he was governor, must really be given to questions nearer home

than the Molopo; but to say, as an Imperial officer, that the interests of the Imperial Government stopped at that sand river in Bechuanaland is to ignore those interests altogether.

Gentlemen, turn to the map and look at the immense native territories which are already in the hands of the Imperial Government, or have been offered to it by the chiefs and tribes. You will observe there is an area of far greater extent than that of the Cape Colony itself; and that vast region, while largely suited for European settlers, is at the present time in many districts all but unoccupied. I ask you, is it worthy of Her Majesty's Government to trifle, as it has done for years, with the great question of the opening up and the development of these regions? I know that, quite recently, certain steps have been taken in that country, which, duly chronicled in the daily papers, might beget the fond belief in the unwary mind that something was at last being done there in the Imperial interest. I confess that I am entirely sceptical, simply because our present High Commissioner, who has the management of matters, has seriously and solemnly expressed his opinion that British interests do not really reach these regions, but, as we have heard, are bounded further south; that English settlers should be kept out of North Bechuanaland by Imperial police, and that Swaziland should be turned over to the Transvaal. All this means "getting out of it." You and I desire the administration and development of it. Therefore I am entirely sceptical.

Look at the map again, giving your attention to the large native territories alone. I ask you, as Englishmen and men of business, is it expedient, or right, or worthy on the part of our Government to go on shirking the noble Imperial work of administering these territories? When will our Government realise that this constant habit in South Africa of trying to "get out of" things lowers our position and our influence more than anything else in the eyes of both colonists and natives, and in the end invariably involves greater expenditure?

My earnest recommendation is, therefore, that the obligations which our Government undertook in 1885, in answer to inquiries made at Berlin, should be intelligently carried out; and in order to do this, that Imperial administration should be extended to all Khame's territory, as proposed by Khame himself to Sir Charles Warren. I further suggest that in our Imperial proclamation we should include in our protectorate—in terms of Lord Derby's reply to a question by President Kruger on the subject—"Any neighbouring chiefs who may have claims to it" (c. 4,432, 106); and our protectorate should therefore be announced as "including such other chiefs and tribes as may hereafter desire, and apply for, Her Majesty's protection, and whose application, after due consideration, Her Majesty may be advised to entertain favourably."

But, gentlemen, the moment we cease to try to "get out of our responsibilities in South Africa, and seek, as practical Englishmen, to discharge them, we come at once to perceive that at present we have virtually no Imperial function or department in that country. Let me illustrate our Imperial position in South Africa at the present moment in this way: Suppose England had removed from India the Governor-General and his Department, and abolished at the same time the India Council, leaving in India only separate local governors and administrators, and in this country only the Secretary of State for India. Add to this the northward stream of white men into our native territories, and you have some conception of our present hapless condition as to Imperial administration in South Africa. Again I appeal to you, is it worthy of the Imperial Government that this state of things should go on?

Facing the administrative work before us, and finding that we have no officer there whose whole time and attention is given to the discharge of our Imperial duties, any ordinary Englishman will say—Why not appoint an Imperial High Commissioner, who shall be unencumbered with any other local office? Now that is part of my proposal: *the first thing is that you face your duty as far north as Khame's territory extends*, and to that I think there will be no opposition. The next is that in order to do so effectually you need an Imperial High Commissioner. I beg you to take special notice that this proposal does not involve any interference with the present rights and privileges of the colonists as now enjoyed by them. The Governor of the Cape Colony, as at present, would preside over the administration of the affairs of the colony, guided by his constitutional advisers, and communicate with England on colonial business, without any new interference springing from the change in the Imperial arrangements for other parts of the country. The officer whose appointment I advocate as absolutely necessary would represent the Imperial Government in South Africa as the High Commissioner is supposed to do at present in certain districts; and the Governor of Natal in certain other districts. He would preside over the administration of native territories, and control the influx of Europeans; he would conduct the correspondence on the part of the Imperial Government with the Free State and the Transvaal Governments, as the High Commissioner sometimes, and the Governor of Natal at other times, do at present. He would attend to any border questions which affected the native territories under his administration; and generally he would supply, in an initial form, and for the common benefit, the services of a general government.

Allow me to explain further that this would be no abrupt revolution: it would be a necessary growth and development. When responsible government was bestowed on the Cape Colony,

it was felt that there should be retained a recognised Imperial function in the country. I may be allowed to remark that when our Imperial affairs were at their lowest ebb, those who were anxious that the Transvaal should enjoy its self-government were also very careful to assure the English public that they had no intention of abandoning what was called our inherited policy towards the important native races outside the colony. Well, in 1871 it was thought that these Imperial duties might be safely and advantageously combined with the governorship of the Cape Colony, and so the dual office was created. Since that time I need not say that local discovery, the action of native chiefs and tribes, extending to the Zambesi—along with the energetic, and shall I say unlooked-for, enterprise of other European nations—have completely changed the political situation in South Africa. The arrangement which was made in 1871 is not suited to the South Africa of 1888. The able officer to whose hands the combined offices were first entrusted, and under whose auspices responsible government was granted to the Cape Colony, is happily spared to us. He was one of the speakers at the city of London meeting to which I have already referred, and Sir Henry Barkly has recently expressed in public his approval of the policy which I am now laying before you. It is not a small matter that it met with the unqualified approbation of a statesman like the late Mr. Forster; while Sir Charles Warren, who has had exceptional opportunities of acquiring knowledge of the subject, will, I trust, be able to attend our meeting and join in the discussion to-day.

What is colonial opinion on this question? I think there is only one opinion as to the extension of our Imperial influence to the Zambesi, except such as may issue from or be inspired by Pretoria. From the same quarter, in reality, comes most of the opposition to the proposed reform in our Imperial method. At present our zig-zag, shilly-shally policy makes the Imperial Government the butt of scorn and contempt. That is just as some people would have it. For it to pursue an unobtrusive, helpful, and continuous policy in trans-colonial territories would be to reinstate it in popular confidence; and there are those who do not desire this. Generally speaking, the men who disapproved of the Bechuanaland protectorate and the Bechuanaland expedition will disapprove of Imperial administration also. It must be remembered, however, that when that protectorate was undertaken it was with no hurried intention of thrusting the responsibility upon the Colonial Government. Whether Bechuanaland should eventually belong to the Cape Colony was left, and ought still to be left, an open question. Those, therefore who upheld the protectorate and the expedition must still reckon upon a certain amount of opposition from the old quarter, which, however, will die in one night as soon as it is

perceived that the Imperial Government has resolved upon a worthy and continuous policy. As showing present opinion on this subject among intelligent and influential Cape Colonists, I may read an extract from a letter which I recently received from a distinguished colonist. Speaking of the unsatisfactory working of the present system, he says:—

“Nothing can be more obvious than that the offices of High Commissioner and Cape Governor ought to be separated. If the latter is to have peace, and preserve his reputation as an administrator, he must defer to his ministry in regard even to Imperial matters outside the colony, and the ministry are, and are likely to be, dominated by the Afrikaner Bond. . . . There is loyal sentiment, but it does not get heard in England. . . . An ardent loyalty really exists (you yourself have had proof of it), but it has little chance of approaching the Home Government and the public. . . . You should use all your influence to get the Government to appoint a Governor-General, relieving the Cape Town Ministry and Governor of the duty of influencing and reporting on South African affairs. Without any delay extend the protectorate to the Zambesi, and colonise portions of the rich unoccupied country with good citizens.”

You will not be surprised to hear that the present dual system has been seriously and publicly complained of by Cape colonists. A member of the present Cape Ministry, in his place in the House, denounced the “hybrid Government,” as he called the present arrangement, “in which the irresponsible rule of the High Commissioner might be pitted against the responsible rule of the Governor.” “The question was,” said this minister, “would they have responsible government or the sham of responsible government?” “A candid exposition of the political strategy of the last two sessions of Parliament in particular,” says the *Cape Times*, “would present in an irresistible form of the argument against the combination of these functions.” And again the same paper says, “We deplore the anomaly of a dual Government. . . . We would confine ministers strictly to their proper business, and the High Commissioner to his own sphere. And this can be done by separating the two officers, and removing the High Commissioner from the temptation of mixing up the trust which he holds from the Crown with the expediences of colonial party politics.” And again, “We recently argued from the facts patent to everybody during the last session of Parliament, against the combination of the offices of Governor and High Commissioner in one person.”

But I need not multiply illustrations. Those of you who read the colonial papers, or who yourselves as colonists are accustomed to move in Cape society, are fully aware that instead of entertaining jealousy of the establishment of Imperial power in trans-colonial countries, the ceaseless dread of the

leading minds at the Cape at present is that Her Majesty's Government should be induced by misleading advice to withdraw from the direct control of these territories. As you are aware, an unsatisfactory answer was lately given in the House of Commons by the Under Secretary of State to a question concerning this dual office, put by a member of the House who has given attention to this great question. The official reply was guarded, and said "as at present advised." There is a great deal that is humbling in that expression, when one thinks of the zig-zag advice given within the last few years; but there is also something hopeful in the expression, if you take it to mean that Her Majesty's Government has an open mind on the question.

The present is a most suitable time to introduce an improvement in our Imperial methods. A time of excitement and disturbance demands the appearance of the representatives of law and order. But an improvement in our Imperial procedure ought to take place in a time of comparative quiet such as the present—a degree of quiet, let me add, which is the result of Imperial action, however clogged and hampered. "Do not swap horses in crossing a stream," but having crossed, arrange your affairs like reasonable men on the other side. There are circumstances which render the present peculiarly the right time to make this absolutely necessary change. The usual period of service has been exceeded by the present High Commissioner, who, everyone will admit, has done his best with the impossible duties which he has had to attempt to perform. Instead of imposing these impossible duties on another officer, it will be for Her Majesty's Government to select two able administrators—one to govern the Cape Colony constitutionally as a British colony, and the other to give his whole time and ability to the Imperial office of High Commissioner. There is another reason why this step should now be taken. Such has been the recent history of the dual administration that I venture to affirm that no first-class administrator, such as Her Majesty's Government would wish to send as Governor to an important colony like the Cape, would accept that office if it continued to have attached to it the High Commissionership. When he finds that the present incumbent succeeded in divesting himself of Imperial duties in Zululand, because he could not attend to them—when he sees that through the dual office Imperial affairs beyond the colonial border have formed the subjects of unseemly and disturbing debates in the colonial parliament, in which the action of the High Commissioner and other Imperial officers was assailed—when he learns that the junction of the offices is openly complained of by colonists—when he finds that one High Commissioner thought he should consult his Colonial Ministry, both as High Commissioner and as Governor of the

colony, while another said he consulted them only when he thought he was about to act as Governor, securing, however, that one large native territory should be given into his hands as Governor of the Cape, and not as High Commissioner, so that he might in it spend Imperial money with colonial advice—when our able administrator hears of the “disagreeables” brought about by the present order of things between Imperial Commissioners, and learns that even the British Colony of Natal comes to complain of the advice given by the Governor of the Cape as favouring the Transvaal more than Natal—then I feel sure that he will say, Let me administer as constitutional Governor of the Cape Colony, or let me act as Imperial Commissioner in South Africa, but do not expect me to carry on a kind of administration which leading colonists have branded as a hybrid government and a sham.

Now, gentlemen, it is not long since people in this country believed in Great Britain, but did not know that there was also a Greater Britain. We have now learned that lesson. We believe in Great Britain and also in Greater Britain. Now this is the kind of lesson which Cape Colonists, and all interested in the Cape Colony and in British rule in South Africa, must learn. There is the Cape Colony, but there is also the greater dominion of Austral Africa. Great Britain still excels what we nevertheless rightly term Greater Britain, and the Cape Colony in like manner excels the other parts of South Africa; but no one who knows the country can have the least hesitation in affirming that trans-colonial South Africa transcends colonial South Africa; and the recognition of this fact is a wholesome thing for the Imperial Government and for the Government of the Cape Colony. There is no place for rivalry—no room for bitterness. The growth of Greater Britain does not mean the decay of Great Britain, but the opposite; and so the growth of British influence, the steady exercise of Imperial administration in the trans-colonial regions under our consideration, means not the ruin but evidently the increased prosperity of the Cape Colony, of Natal, and of South Africa generally.

I have as yet heard of only one objector to this scheme, and only one set of objections, to every one of which I have already formally replied, and which I shall now proceed to mention very briefly. The first is the question of residence. Where is your High Commissioner to live? Now this does not sound to me as an objection at all, but rather as an inquiry into a matter of detail. It is plain that as long as you have, as at present, one officer discharging, or attempting to discharge, Imperial and Colonial functions, you need not provide two residences. If you did make this provision the difficulty would be created, because the officer could occupy only one house at a given time! In the same way, if you have a High Commissioner as well as a

Governor of the Cape, and yet your mind hankers after and hovers over one old-fashioned but comfortable enough residence in Government Gardens, Capetown, you are again creating a difficulty. Your two officers cannot occupy the one dwelling! Speaking seriously, it is, of course, the new officer who must seek the new residence. His duties being of a general character, his residence would be fixed after due consideration, and having regard to the general interest and advantage. Only place him near the telegraph line and give him the means of personally visiting the countries under his care. These are the first requisites. Other important questions could afterwards be considered and settled. In no district of our colonies—in no part of our territories—would the High Commissioner and his staff be unwelcome or out of place. Indeed, a difficulty would at once be created if one now recommended a certain place of stated residence; and this difficulty would have to do, not with the unwillingness of the inhabitants of that neighbourhood, but with the disappointment of the advocates of all other possible places of residence. The question of residence is certainly no difficulty.

The question is also put, And what is your High Commissioner to do? Now this question I think I have already fully answered this afternoon.

Then it is asked, How would you pay him? I reply that the native territories over which he would preside would certainly pay for their own administration, and provide at least a part of the expenses of the central or High Commissioner's department. I find it is generally believed in England that, under the present arrangement, we are paying for the services of our High Commissioner. This is a mistake. The truth is, the Cape Colony at present pays the whole salary of the holder of the duplex office—as Governor and as High Commissioner. Again, it was generally supposed in 1884 in England that an Imperial department had been fairly launched in South Africa; but, as I have shown already, the question at Capetown soon came to be, not how to do this, but “how to get out” of doing it. Now, if Austral Africa is of consequence to Great Britain it is at least worth the salary of an Imperial High Commissioner and a suitable department. The British ratepayers not only would not object to pay the salary of this officer, but, as I have said, I find most people are of opinion that we are doing so, at least in part, at present. But it would not be the case that this central or Imperial department would be a permanent charge on the Imperial Government. On the contrary, all moneys advanced to it might be in the form of a loan, charged against the Dominion Government of Austral Africa. I take it that were the money never repaid, and if our central Government guided and controlled the development and opening up of this magnificent country, the outlay would be Imperial money well invested.

But there is no reason to suppose that an Imperial department, with such a rich and vast asset in land, would long be without an income more than sufficient to pay its own way. And here I do not take into account that support which it is only reasonable to suppose would eventually be given by the various local European Governments to a central Imperial department, which each and all of them would in the course of time find to be of the utmost common benefit. And in the happy time, to which I look forward with steady eye—after an interval in which the Imperial administration shall have achieved great things for the country, and great things for its own reputation in the minds of all the inhabitants—after education also has done its work, and colonisation has extensively introduced new blood into the country—when at length limb shall naturally and spontaneously seek after limb of the long-separated body politic of South Africa—then your Imperial central department shall be recognised on all hands as the head round which the various members of the body will naturally gather; and at length we shall have a united and a loyal Dominion of Austral Africa, under the flag of Great Britain, from the Cape of Good Hope to the Zambesi.

NOTE.

APPROXIMATE POPULATION OF AUSTRAL AFRICA FROM THE CAPE TO THE ZAMBESI.

BRITISH TERRITORY.

	Whites.	Natives.	Total.
Cape Colony, Griqualand West, and Transkei	340,000	760,000	1,100,000
Natal	32,000	388,000	420,000
Basutoland	1,000	150,000	151,000
Bechuanaland	1,000	200,000	201,000
Zululand	1,000	200,000	201,000
Totals	375,000	1,698,000	2,073,000

Total under British Government and Protection ... 2,073,000

Total of native tribes to the north friendly to

Imperial Government (say) 1,000,000

Total 3,073,000

INDEPENDENT STATES.

	Whites.	Natives.	Total.
Free State	62,000	71,600	133,600
Transvaal	60,000	760,000	760,000
Totals	122,000	771,600	893,600

Total in Independent States 893,600

Approximate grand total 3,966,600

In round numbers 4,000,000

ESTIMATED AREA OF AUSTRAL AFRICA.

BRITISH TERRITORIES.

					Square Miles.	Square Miles.
Cape Colony, former area	...	...	...	...	199,406	
Do.	recent additions:—					
				Square Miles.		
Griqualand West	...	...	...	17,800		
Griqualand East	...	...	...	7,480		
Transkei	...	...	...	2,535		
Tembuland	...	...	...	4,055		
					31,870	
Cape Colony, total area	...	...	...	...	231,276	
Bechuanaland	...	...	...	...	180,000	
Basutoland	...	...	...	...	10,290	
Natal	...	...	...	...	21,150	
						442,716
Native Territories unoccupied and occupied by tribes friendly to the Imperial Government						350,000
INDEPENDENT STATES.						
Free State	...	...	...	...	76,000	
Transvaal	...	...	...	...	114,000	
						184,000

Notes on the Geography from Nile to Euphrates as known to the Ancient Egyptians. By the Rev. HENRY GEORGE TOMKINS.—No route was so important in the most ancient times as the great drift-way from the Persian Gulf to the Nile mouths by way of the Orontes valley, Coele-Syria and Palestine, or of Damascus and across the Jordan. The Egyptians were the greatest of primeval geographers, and have preserved for us on a profuse scale their records. Narratives of conquests, tribute-lists, despatches and private letters, and many other memorials have come down as our materials; and none are more interesting than the *cuneiform* tablets lately found at Tel-el-Amarna in Upper Egypt. The results of examination are not yet fully available, but we are quickly filling up the map of all the country from the Egyptian eastern frontier to the banks of Euphrates for the ages before the conquest of Joshua. From the fortified border of the Delta three routes led eastwards and northwards across the desert. 1. From Tanis (Zoan) by Pelusium along the coast. 2. From the Wady Tumilat, the ancient road rediscovered by the Rev. F. W. Holland. 3. The way of the Red Sea, represented by the present Hajj road. The Etham of the Exodus was not any *Khetam*, but the Atima of the papyri, probably the el Adâm mentioned by the Rev. Greville Chester between Pelusium and Daphnæ (Tahpanhes). Seti I. has given us his military route, with its fortified watering stations in the desert, to the stronghold of Kanāna south of Hebron. A very important place, besieged and taken after the expulsion of the Hyksôs by Aahmes, the founder of the XVIII. dynasty, is Sharuhén, now Tel-esh-Sheriâh, north-west of Beersheba. It used to be thought that the Egyptian armies avoided the mountain masses of Palestine. But a careful examination of the Karnak tribute-lists leads to a quite different conclusion. The coast route was deflected far inland by a dense and impracticable forest, haunted by brigands, between Joppa and Carmel. But the hill-country was brought under the military control of Egypt by the great kings of the eighteenth dynasty. The names of the tribute-lists are to a great extent identical with the Biblical names in the book of Joshua, &c., and many of them occur in Assyrian annals, and the greater part may be found not greatly altered as the present local names. Askalon, Joppa, Gaza, Megiddo, were Egyptian garrisons. The great fords of the Jordan were covered by military posts on the east side, and the great route down into Arabia was secured. Tabor and Merom and Laish were points of note. The fords of Jordan, and the Litāny (Nazana) are mentioned, and the Nahr-el-Kelb bears its own monumental

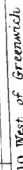
testimony to the conquerors. The Lebanon supplies its cedar and pine timber to the Pharaohs, who had garrisons there. Along the southern Nahr-el-Kebir (Eleutherus) a great route led to the Orontes and its fortress Kadesh in the land of the Amorites. The Orontes valley is full of names which we meet in Egyptian tribute-lists and narratives of campaigns, and several occur near Antioch and in the Taurus. The northern list of Thothmes III. furnishes 230 names, besides 119 in the Palestine list. Very careful examination now shows that at least 20 of the northern names as along the Euphrates, including Pethor (of Balaam), Karkemish, and Kirkesion, and three important fortified towns renowned in the Egyptian campaigns, Anukie (Annukas of Procopius, refortified by Justinian); Hurenkal; and Inuä (perhaps Haragla or Heraklele and Einya, both on Euphrates). The land of Naharina extended east and west of Euphrates, as we learn from Egyptian texts, but in the cuneiform tablets of Tel-el-Amarna it is identified with the land of Mitäni between Euphrates and the Khabür river. These tablets show us that the Pharaohs Amenhotep III. and IV. (Khu-en-aten) were overlords of Assyria and Babylonia, and this agrees well with the principal places on both sides of the Euphrates being included in the tribute-list of Thothmes III. A list of Euphratean names will illustrate this, reaching from above Bir-ejik to some 100 miles below Kirkesion, including positions on the east side commanding great passages of the river. Further eastward it is not proposed to go in the present paper. But the inclusion of Damascus and other places on the great route across the Jordan near Beth-shan, and the old Hajj road towards Arabia, in the lists of Thothmes, is thoroughly congruous with such substantial conquest as we have now ascertained. This was the old line of march of Kedorla'omer in the days of Abraham, and in the list of Thothmes we find the same memorials in the Ono-rapha which preserves the name of the Rephaim, and Ashtaroth where these people were smitten, and perhaps Hum is the Ham where the Zuzim were likewise smitten by the old Elamite suzerain. Now the tables had been turned, and Egypt was lord of the Euphrates. The Egyptians, for all their appliances of easy life, were a very enterprising people, and highly trained both as conquerors and administrators, and were continually forced to supply their needs from foreign lands and to defend themselves by keeping their enemies in order. These things help to account for the thorough knowledge which they had of the geography between their own Nile and the great river Euphrates, which we are able to ascertain by Biblical and Assyrian and classic records, and by the innumerable names still fresh on the lips of the inhabitants. The successful studies of Mariette, de Rougé, Brugsch, de Sauley, Maspero, Conder, and others should but stimulate us, both scholars and travellers, to more perfect methods and more exhaustive results.—*British Association, 1888.*

Christmas Island.—A VISIT TO AN UNEXPLORED ISLAND.—Letters have been received from Her Majesty's ship *Egeria*, Commander Pelham Aldrich, containing particulars of a visit she has recently made to Christmas Island, which she was ordered to explore for scientific purposes. The *Egeria* claims to be the first vessel that has ever explored this island. Christmas Island is situated in the Indian Ocean, in lat. 11 deg. S., long. 105 deg. 30 min. E. It is 1,100 feet above the sea, is twelve miles long and eight miles broad. The *Egeria* reached the island on September 30, and remained there until October 10. The officers and men told off for exploring purposes found that the whole place was composed of coral and rock; notwithstanding this, however, it is covered almost completely with trees and shrubs, the trees, which are of large dimensions, seeming to grow literally out of the rock itself, earth surfaces being conspicuous by their absence. It is uninhabited by human beings, nor could any traces of animals be discovered, but seabirds swarm over every part of the island, and about four hundred wood pigeons were shot by the explorers while they remained there. No fruits or vegetable matter fit for consumption could, however, be found, nor the existence of any supply of fresh water, and the belief is that the vegetation of the island is dependent for nourishment on the dews and the heavy rains that fall. The various specimens collected of birds, plants, and insects, carefully preserved on board under the direction of Mr. Lister, the well known naturalist—who went specially to the island in the *Egeria*—will be sent home for the British Museum and Kew Gardens.—*Newcastle Chronicle.*

to illustrate a Paper by the
HON. E. B. GUDGEON, K.C.A.R. &c.
Consul-General for Liberia

HON. F. B. GUDGEON, K.C.A.R.&c.

Consul. General for Liberia.



LIBERIA.—(*See Map.*)

BY THE HON. E. B. GUDGEON, K.C.A.R., K.C.S.O., Consul-General for
Liberia, London.

[Read to the Members of the Library, November 21st, 1888.]

I HAVE great pleasure in addressing the Manchester Geographical Society on the subject of Liberia.

Liberia in point of situation occupies the grain, paper or pepper coast of Northern Guinea, and lies between the fourth and ninth parallels of north latitude, having the English colonies of Sierra Leone on the north-west, and the gold coast and Cape Coast Castle on the south-east. It was originally founded by the American Colonisation Society in 1822 and 1823, and the work of civilising and Christianising the inhabitants of this almost unknown country was entirely carried on for more than twenty years by the American Colonisation Society, who, having established missions along the coast, and at various points inland, enabled these same missions to afterwards become the towns and settlements of Liberia. In 1843, however, a form of government was set up, and for four years worked very harmoniously, and prepared the way for that which occurred in 1847, when Liberia became an independent state, and was acknowledged as such by all the European Powers. It is the outcome of Negro emancipation, and consequently it is composed of freed Negroes and their descendants, with numerous aboriginal tribes, and is entirely governed by men of colour. In saying this, it is but fair to remember the part England took when, in the year 1833, she proclaimed her slaves free, and spent of English money twenty millions sterling as an earnest of her determination; nor would it be just to forget, that to the untiring efforts of William Wilberforce, and many prominent members of the Society of Friends, is also due this happy result; and if proof were wanting of how capable the freed negro is of governing, Liberia stands out as a prominent example. The great ability, learning, and skill of many of Liberia's citizens are found in their code of laws, which, for humanity, justice, and morality, no other country can excel. One of her first articles is that Christianity is the foundation of all law; her next, that education is a necessity, admitting of no appeal. Hence she has founded schools everywhere—poor, middle-class, and even a university, with professors trained at Oxford and Cambridge. The Government of Liberia consists of a president and ministers, as in other countries; two Houses of Parliament, a Senate, and a Lower House; and her

first Parliament decreed that the profession of any form of Christianity shall be protected by the state, and the professing of any such form shall be no bar to the attainment of the highest offices of the state.

Nearly two millions of souls are subject to her rule, consisting of about forty thousand freed negroes and their descendants, the remainder belonging to aborigines, tribes of which I shall speak a little later on. It is, however, the boast of Liberia's sons that though she possesses a seaboard of some five hundred miles, and an interior of about two hundred, she has not acquired one inch of territory by seizure, conquest, or the spilling of one drop of blood. All has been acquired by treaty, purchase, exchange, and barter. Her capital, Monrovia, is described as being very well built, with wide streets, and is a fine city—the harbour and port exceedingly well placed, and admitting of ships of large tonnage—in short, if it is remembered that Liberia is only this year entering her forty-first year of state life, what she has accomplished may be truly said to be marvellous, taking into account how scant her means and her materials for development have hitherto been.

Here, as in most other countries similarly situated, the land in the immediate vicinity of the ocean is generally low, and in some places very marshy. There are some elevated spots, however, such as those on which the cities of Monrovia and Harper are located. The land generally becomes more elevated towards the interior, and in some places, within fifty miles of the coast, it is quite mountainous. Far as the eye can reach, from the highest points of land in the vicinity of the ocean, the whole country presents the appearance of a deep unbroken forest, with hill-top rising above hill-top toward the vast interior, the country consisting, not as is supposed by some persons, of arid plain and burning sands, but of hills and valleys, covered with the verdure of perpetual spring. The country is well watered, many beautiful streams may be seen winding their way amid blooming flowers and wild shrubbery, and many cooling springs of clear sparkling water invite the weary traveller to linger and quench his thirst.

In all the settlements in Liberia good water can be procured without much difficulty, and though in the dry season, as in this country after a long dry spell of summer, some of the springs fail for a time, yet good water can always be obtained by digging wells; and as many of the springs never fail, there need not be any fear about getting plenty of good water at any time in the year.

The soil of Liberia, like that of other countries, varies in appearance, quality, and productiveness. That of the uplands, though generally much inferior to that of the lowlands, is better adapted to some articles of produce. The upland soil usually

consists of a reddish clay, more or less mixed with soft rocks and stones, containing considerable quantities of iron. That of the lowlands, in the immediate vicinity of the ocean, consists principally of sand. Besides this sandy soil there are two other varieties of lowland soil, one of which is that on the banks of the rivers, within a few miles of the sea. This consists of a loose, deep black mould, which is peculiarly adapted to the growth of those kind of vegetables that thrive best during the dry season.

The other variety is that which is generally found extending back from the banks of the rivers, farther from the sea than the last-named. This consists of a light-coloured clay, more or less tempered with sand, and it is well adapted to almost every kind of vegetables that will thrive in tropical climates. I should remark that, being a sub-tropical country, she enjoys a climate which produces every kind of fruit, and in abundance.

It is often asked, Is the country healthy? I will give you the account just published by "natives and travellers." Thus, Bishop Taylor says: "I have entirely changed my mind in regard to the perils of life in this country, especially in Liberia, which I believe to be a healthful climate, much more so than the eastern shore of Maryland, New Jersey, or New York, and far ahead of the new settlements of the Mississippi Valley;" and he adds, "It is an equally salubrious, enjoyable climate, and no plague of flies and but few mosquitoes." Another traveller writes: "I need not speak again of the soil of the Cavalry river country. It is all fertile, yet high, hilly, and healthful." The river itself, nearly as large as the Hudson, flows rapidly between high banks, with no swamps, and is beautifully clean. He adds: "I saw so many beautiful hills on which I would like to build a house and settle down, that I could not be but enraptured with the sight." Another calls it "The garden spot of West Africa." Speaking of the climate of Liberia reminds me of an incident which occurred in September, 1886. One of the cabinet ministers of Liberia arrived in London on business, and did me the honour of a visit. He had been but a few days in London. The weather for the time of year was cold and showery. He said to me, "Your climate is not pleasant. When we have wet weather the rain is warm, and the breezes are refreshing, but *your* rain is cold and chilly, and goes right through one. I shall return as soon as I can to the preferable climate of Monrovia." And he did so, leaving Liverpool two days afterwards. I merely mention this to show the two climates as they appear from disinterested points of view.

Imbibing strong liquors, and facing the night air are alike dangerous to the Europeans. No Liberian attempts to do so, and drinking was unknown there until Europeans appeared on the scene and bartered rum for possessions. The men spend their evenings with their families, and retire early to

rest. Some of the Liberian farmers and merchants have made fortunes, and live in comfortable and even elegant style. In the month of July last some Liberian merchants from different parts of the republic left on board the English mail steamer on their way to Europe, for business or pleasure. They were all coloured men, born in the United States, and had emigrated to Liberia when children.

Mr. Stanley, the great traveller, who has often visited Liberia, thus speaks of the young republic: "The American people," he says, "had evidently forgotten that it was through the philanthropy of their fellow-citizens that the free state of Liberia had been founded, to the establishment of which they had contributed more than half a million of money to create homes and comforts for the 18,000 free Africans they despatched to settle there. This state, which they might regard with honest pride, had now an area of 14,300 square miles, and a revenue of about £40,000 per annum."

It was an act well worthy of the great republic of the United States, not only as taking the lead in publicly recognising and supporting the great work of African civilisation in history, and in promoting the extension of commerce, but of significant import in view of its interest in the future weal of the seven millions of people of African descent within its own borders. And it is something for us Camberwellians to be proud of that the courageous companion of the great African traveller in the work of exploration is the son of my neighbour, one of our most respected inhabitants. Next to Stanley the name of Harry Johnston will go down in history as one of the greatest explorers and travellers of modern times. A young gentleman just entering full manhood, possessing an iron will, and a courage that has never failed, and that, too, under circumstances of great peril and greater adventure.

The Hon. Dr. E. J. Blyden (who some few years since was minister plenipotentiary of Liberia to the Court of St. James's) has published a remarkable work, entitled "Christianity, Islam, and the Negro Race," a work of deep interest and well worthy of attentive perusal. Speaking of Liberia he says, "The nations of the earth are now looking at Liberia as one of the hopeful spots on the continent of Africa." The President of the United States, in his last message, referred to "the interest which this Government feels in the youngest sister of the great international family." To a deputation from the Colonisation Society, which called upon him a year ago, President Arthur said that he "had always taken great interest in the work of the Colonisation Society, which was, in his judgment, eminently practical."

President Gardner, who for five years presided over the little nation, expresses the views entertained by its most enlightened citizens as follows:—

"The ship of state, which we launched in fear and trembling, is still afloat, with timbers sound and spars unharmed. The Lone Star of Liberia, untarnished, is pushing its way eastward, successfully achieving victories of peace even to the slopes of the Niger, gathering willing thousands under its elevating and hopeful folds." The American Colonisation Society must feel greatly strengthened in its work. It has achieved what no other philanthropical agency in modern times has accomplished, and what, perhaps, no nation could have effected, viz., the giving to the Negro an independent home in the land of his fathers, where he has unlimited scope for development and expansion. Had Liberia been the colony of a powerful government political and commercial jealousies and the purposes of party spirit, might have prevented the surrender of the colony to the absolute control of the colonists. Hayti had to fight for her independence. It is not practicable for Great Britain to give up Jamaica, or Barbadoes, or Sierra Leone, or Lagos. But the American Colonisation Society founded a nation, and continues to strengthen it. So God takes the weak things of the earth to confound the things that are mighty.

In a letter dated at the Palace of Madrid, February 11th, 1882, King Alphonso XII. of Spain writes to the President of Liberia as follows:—

"Great and good friend,—Desiring to give to you a public testimony of my royal appreciation and my particular esteem, I have had special pleasure in nominating you Knight of the Grand Cross of the Royal Order of Isabel the Catholic. I am pleased by this action—also to furnish new proof of the desire which animates me to strengthen more and more the friendly relations which happily exist between Spain and the Republic of Liberia, and with this motive I repeat to you the assurance of the affection which I entertain towards you, and with which I am, great and good friend, your great and good friend,

"ALFONSO."

The Republic of Liberia now stands before the world the realisation of the dreams of the founders of the American Colonisation Society, and in many respects more than the realisation. Its effect upon that great country is not to be estimated solely by the six hundred miles of coast which it has brought under civilised law. A sea of influence has been created, to which rivulets and large streams are attracted from the distant interior; and up those streams, for a considerable distance, a tide of regeneration continually flows. Far beyond the range of the recognised limits of Liberia, hundreds of miles away from the coast, I have witnessed the effects of American civilisation, not only in the articles of American manufacture, which I have been surprised to see in those remote districts, but in the intelligible use of the English language, which I

have encountered in the far inland regions, all going out from Liberia. None can calculate the wide-spreading results of a single channel of wholesome influence. Travellers in Syria tell us that Damascus owes its fertility and beauty to one single stream—the river Abana. Without that little river the charm and glory of Damascus would disappear. It would be a city in a desert. So the influence of Liberia, insignificant as it may seem, is the increasing source of beauty and fertility, of civilisation and progress, to West and Central Africa.

I will now speak of the climate of Liberia. Being within a few degrees of the Equator, of course the nature of the climate is essentially different from that of the United States, the vicissitudes of spring, summer, autumn, and winter not being experienced in the equatorial regions of the earth, there being continued summer weather throughout the year, interrupted only by occasional slight variations in the state of the atmosphere, caused by the greater strength of the ordinary breezes, and by clouds and rain, which latter prevail so much more during one half of the year than during the other half as to give rise to the usually recognised division of the year into two seasons—the wet or rainy season and the dry season, or in common parlance “the rains” and “the dries,” the former of which answers nearly to summer and autumn and the latter to winter and spring in temperate latitudes. This unqualified and somewhat arbitrary division of the year, however, has led many persons into error respecting the real state of the weather during the two seasons, some supposing that during the rainy season more or less rain falls every day, and on the other hand, during the dry season, an uninterrupted spell of hot and dry weather prevails for six successive months. This is so far from being the case that, as a general rule, it may be stated that some rain falls in every month in the year, and in every month there is some fine, clear, pleasant weather. Much more rain, however, falls during the six months beginning with May than during the remaining six months beginning with November. It is difficult, however, to determine at what time each of the two seasons actually commences and closes. As a general rule the middle of May may be set down as the beginning of the rainy season, and the middle of November as that of the dry season. In order to give an accurate and comprehensive statement of the character of the climate and seasons of Liberia, it may be the best plan to note the vicissitudes of each month in the year as they are usually presented.

January is usually the driest and one of the warmest months in the year. Sometimes during this month no rain at all falls, but generally there are occasional slight showers, particularly at night. Were it not for the sea breeze, which prevails with almost uninterrupted regularity through the greater part of the day

on almost every day throughout the year, the weather would be exceedingly oppressive during the first three or four months of the year. As it is, the oppressiveness of the rays of the tropical sun is greatly mitigated by the cooling breezes from the ocean, which usually blow from about 10 a.m. to 10 p.m., the land breeze occupying the remainder of the night and about an hour in the forenoon. During these intervals the atmosphere is sometimes very oppressive. The regularity of the sea breeze, especially in the month of January, is sometimes interrupted by the longer continuance of the land breeze, which occasionally does not cease blowing until 2 or 3 p.m. This is what is called the harmattan wind, about which a great deal has been written, but which does not generally fully accord with the forced descriptions of hasty observers or copyists. The principal peculiarity of the harmattan wind consists in its drying properties, and its very sensible coolness, especially early in the morning. It seldom, perhaps never, continues the whole day, and usually not much longer than the ordinary land breeze at other times in the year. When this wind blows pretty strongly, the leaves and covers of books sometimes curl as if they had been placed near a fire, the seams of furniture and of wooden vessels sometimes open considerably, and the skin of persons sometimes feels particularly dry and unpleasant, in consequence of the rapid evaporation of both the sensible and the insensible perspiration. What is called generally the harmattan season usually commences about the middle of December, and continues until the latter part of February. During this time, especially in the month of January, the atmosphere has a smoky appearance, similar to what is termed Indian summer in the United States, but generally more hazy.

During the month of February the weather is generally similar to that of January. There are, however, usually more frequent showers of rain, and sometimes, towards the close of this month, slight tornadoes are experienced. The harmattan haze generally disappears about the last part of this month, and the atmosphere becomes clear.

March is perhaps the most trying month in the year to the constitutions of new-comers. The atmosphere is usually very oppressive during this month, the sun being nearly vertical. The occasional showers of rain and the slight tornadoes which occur in this month do not usually mitigate the oppressiveness of the atmosphere, as might be supposed.

April is significantly called tornado month, the most numerous and most violent tornadoes usually occurring during this month. The ordinary state of the weather, in reference to the degrees of heat and its influence on the system, is not very different from that of the three preceding months. At the commencement of a tornado dark clouds appear above the eastern horizon, which

rapidly ascend, until a dense, lurid-looking mass spreads over the whole hemisphere. As the heavy mass of clouds ascend and spread the roaring sound of the wind becomes stronger and louder, until suddenly it bursts forth in its fury, sometimes seeming as if it would sweep away every opposing object. Very seldom, however, is any material injury sustained from these violent gusts. The scene is sometimes awfully grand for fifteen or twenty minutes, during the formation and continuance of a heavy tornado.

The weather during the month of May is usually more pleasant than in the two preceding months. The atmosphere is generally not quite so warm and oppressive. Sometimes copious and protracted showers of rain fall during the latter half of this month. Tornadoes also occasionally appear in the month of May.

June is perhaps the most rainy month in the year, although there are sometimes clear and pleasant days in June, yet there are seldom twenty-four successive hours of entire freedom from rain. The sun is, however, seldom entirely obscured for a week at a time, and he frequently shines out brightly and pleasantly between the floating clouds several times during the day. In this month the atmosphere is always cooler than in the preceding months, and it is found necessary to wear woollen outer as well as under garments, and to sleep under warm coverings.

During the months of July and August, though, much rain falls—still, very fine weather is the rule, the air always being refreshing and cool. In the month of August, Providence seems specially to order a temporary cessation of rain, for the purpose of permitting the ripening and gathering of the rice crops, which are generally harvested in this month.

September and October are generally very rainy months.

November is a very pleasant month, the temperature being very agreeable to the feelings.

December is decidedly the pleasantest month of the year. Occasional slight showers fall, seldom lasting more than a few minutes at a time. The mornings in this month are peculiarly delightful, the sun rising with brilliancy and beauty, the hills and groves teeming with the verdure of perpetual spring, enriched by the mingled melody of a thousand cheerful songsters. Nothing can exceed the loveliness of a December morning in Liberia.

There are no very large rivers in Liberia, and though some of them are from one-fourth to three-fourths of a mile wide for fifty miles or more from their entrance into the ocean, yet some of them are not navigable to a greater distance than twenty miles, the navigation being obstructed by rapids. The St. Paul, the St. John, and the Junk are the largest, and indeed they are the only rivers of any considerable length or width.

The other principal rivers are the Gallinas, the Cape Mount, the Mechlin, the New Cess, the Grand Cess, the Sanguin, the Sinon, and the Grand Sesters. Some of these present a bold appearance at their mouths, but they are all comparatively short, and none of them are navigable for boats, or even for canoes, more than twenty or thirty miles, without obstruction by rocks or rapids. The St. Paul river is a beautiful stream of water. It is three-fourths of a mile at the widest part (at Caldwell) and about three-eighths of a mile wide at Millsburg, about fourteen miles from its mouth. The banks of this river rise from ten to twenty feet above the water, and, except in places that have been cleared, they are covered with large forest trees, among which may be seen the graceful palm, rearing aloft its green tufted head, and standing in all its pride and beauty, the ornament and the glory of its native land. The St. Paul is perhaps the longest river in Liberia. It is studded with many beautiful islands, abounding in camwood, palm and several other valuable forest trees, and its banks furnish many beautiful sites for residences. Many native hamlets may be seen on the banks of this lovely river, the homes of the untutored children of the forest, the benighted sons and daughters of Africa. The St. Paul separates about three miles from its mouth. The principal stream rolls on towards the ocean, while the other fork flows in a south-easterly direction, almost parallel with the beach, and unites with the little Mesurado river near its mouth, and thus an island is formed about eight miles long and from one to two in width, called Bushrod Island. This latter fork of the river is called Stockton Creek, in honour of Commodore Stockton, who kindly aided in effecting the first purchase of territory. The St. John river is also a beautiful stream. It is about sixty miles south-east of St. Paul, and it flows through that part of Liberia known as the Grand Bassa country. At the widest point it is nearly, or quite, a mile wide. Its length, however, is supposed to be less than that of the St. Paul. The St. John is also studded with numerous islands, the largest of which is Factory Island, about three miles from its mouth. The banks of this river also rise considerably above the water, and the land bordering on it is also very productive.

The Junk river, which is about equidistant from the other two named rivers, is the third in size and importance. The main branch is supposed to be equal in length to the St. John. The northern branch, which is only about forty miles long, is noted as a thoroughfare between Monrovia and Marshall County. At the place of embarkation, a few miles below its source, it is not more than five yards wide, but it gradually expands to the width of more than half a mile. The appearance of the country along the banks of these rivers, and of the numerous little islands which they form, is highly picturesque. The banks of

the St. Paul and the St. John in many places present encouraging scenes of agricultural industry, showing the handiwork of a people whose social condition is vastly superior to that of their aboriginal neighbours, and who are thus placing before the indolent and improvident natives illustrations of the great superiority of the habits of civilised people to their own degrading customs, and examples which must eventually exert a powerful influence on the minds and practice of the contiguous native tribes. And thus, while the mind of the traveller is oppressed by the melancholy consideration of the moral and intellectual darkness of the scattered tribes of human beings, whose desolate-looking hamlets frequently meet his view, as he wends his way amid the dense forests of the uncultivated hills and dales of Africa, he is encouraged to believe that the time will come when this extensive wilderness shall be made glad by the labours of industrious agriculturists, and when this vast desert of intellectual and moral degradation "shall rejoice and blossom as the rose."

I spoke just now on the mission stations of the American Colonisation Society, and said they formed the various towns and settlements of Liberia in 1847, the principal of which are Monrovia, New Georgia, Caldwell, Virginia, Kentucky, Millsburg, Marshall, Edina, Buchanan, Bexley, Greenville, Readville, Lexington, Louisiana. Besides these there are a few other localities, which are sometimes called by one name and sometimes by another.

We have already spoken of Monrovia. It is the largest and oldest of all the settlements, and it is the metropolis and the seat of government of the republic. It is located near the mouth of the Mesurado river (a small stream about fifteen miles long), about four miles south-east of the entrance of the St. Paul river into the ocean, on an elevated site immediately in the rear of Cape Mesurado. The highest part of the hill on which the city stands, and which is near its centre, is about 80ft. above the level of the ocean, and about three-fourths of a mile from the summit of the cape, which is about 250ft. above the sea. Cape Mesurado is a bold promontory covered with masses of forest trees and dense undergrowth, except in places that have been cleared. On the summit of the cape is a light-house and a fort, and along the sloping declivity toward the city there are several cleared lots, on which small houses have been erected in some parts, affording very pleasant places of residence. The greater part of the promontory, however, is very rocky. The course of the coast north of the cape forms a kind of bay, which generally affords safe anchorage for vessels, and the cove near the base of the cape affords as good a landing on the beach as can be found on almost any other part of the coast.

The city of Monrovia, although more compact than any of

the other settlements of Liberia, occupies a considerable extent of ground, being about three-fourths of a mile in length. It is laid out with as much regularity as the location will allow, and the streets, of which there are about fifteen in number, have received regular names. The city is divided into lots of one-fourth of an acre, and most of the dwelling-houses have a lot attached to each of them. Most of the lots and several of the streets are adorned with various tropical fruit trees, and some of the gardens present a handsome appearance. The houses are generally one storey or a storey and a half high, but some are two full storeys. Many of them are substantially built of stone or brick, and some of the best houses are built partly of both these materials. The State House is a large stone building which was erected in 1843. In the rear of this building is a substantial stone prison. There are three commodious stone houses for public worship in the city, Methodist, Baptist, and Presbyterian, nearly all of the professing Christians in the place being attached to one or other of these religious denominations. At the base of the hill, on which stand the principal dwelling-houses, there are several large stone buildings, which are occupied as stores and warehouses. The dwellings of many of the citizens of Monrovia are not only comfortably but elegantly furnished, and some of the residents of this little bustling metropolis live in a style of ease and affluence which does not comport with the contracted views of those persons, who regard a residence in Africa as necessarily associated with the almost entire privation of the good things of this life. The population is about five thousand, exclusive of native children and youths who reside in the families of the citizens.

Referring to the aboriginal tribes, it is supposed that the dark continent of Africa contains upwards of 27 millions of souls, of whom some two millions willingly acknowledge the sovereignty of Liberia. One of the most important is the Kroo tribe, extending from Bassa to the Cavally river, including the Greboas. They are all free men. They do not tolerate domestic slavery. They never have been known to enslave each other. They preferred in the days of the slave trade to kill the criminals of their own tribe to selling them into slavery. No commercial operations can be carried on in West Africa, from Sierra Leone to Loando, without the Kroomen, and they are all taken from Liberian territory. Thousands of them have been away as sailors in merchant and naval ships, and having visited all the points in West, South, and East Africa—travelling even to India, and China—have returned to their homes anxious to see their country improved, and proud of a flag representing a negro nationality. Then Liberia has in her interior the great Mandingo tribe, extending from the St. Paul river to Lake Chad.

Samudu, the new mahdi, a Mandingo, is by birth almost a Liberian, having been born near the eastern borders of Liberian territory. Besides, there are the intermediate tribes, Pessahs, Golahs, Bassas, &c., agriculturists and traders.

Among the products of Liberia for the table or domestic use, nearly all the different kinds of grain, roots, and fruits peculiar to intertropical climates thrive well. The quality of many are of the same kind produced by ourselves. Rice is largely cultivated by the natives, and is a great staple of Africa, and the principal article of food of the numerous aboriginal inhabitants. It yields so abundantly, that notwithstanding the extreme indolence of the natives, who do not work on their farms three months in the year, they can always raise much more than they require.

The sweet potato, cassava, yam, and tania may be raised in great abundance, with very little labour, on almost every kind of land, and at any time during the year. The cassava, when not cooked, in taste very much resembles that of a fresh chestnut; when properly cooked it is very palatable and nutritious. The root of the yam is more farinaceous and more mealy than that of the cassava, resembling the Irish potato. Tania, in like manner, when prepared like Irish potato, resembles that excellent vegetable in taste, and is very wholesome. Almost every kind of vegetable is grown in Liberia, of which I may name beans, peas, cabbages, tomatoes, cucumbers, water melons, pumpkins, musk-melons, beets, radishes, and carrots. The absence of frost assisting greatly in their development, cabbages grow rapidly, and often attain the height of several feet, and rarely go to seed. It is therefore evident that any other kind of vegetable could easily be raised there.

A great variety of fruit is found in Liberia, many of which are indigenous. The principal fruits are the orange, lime, lemon, pine-apple, guava, mango, plantain, cocoa-nut, tamarind, cocoa, pomegranate, cherry, peach, and rose-apple. These grow in great abundance, and it is not at all an uncommon thing to see on an orange tree blossoms, buds, young fruit, and full-grown fruit at the same time, so that while some of the oranges are ripening others are being produced. In the city of Monrovia, orange trees adorn the sides of the streets as well as the yards and gardens of the citizens, filling the air with their delightful fragrance and charming the eye of the traveller. The guava tree, from which the celebrated jelly is made, grows very abundantly, and is about the size of peach trees. The mango plum is a very handsome tree, thrives well, and the fruit is about the size of an ordinary apple, and in taste resembles the African peach. The banana is well known in this country, and needs no reference; but here I would remark, in speaking of the banana, that the quantity sent to this country from the West Indies is simply

enormous, and the amount they produce equally surprising. They grow in favour more and more each year, and I have no doubt, ere long, we shall have, with many other fruits from Liberia, a plentiful supply of the favourite banana. The cocoa-nut tree, which sometimes rises to the height of 30 feet or more, is perhaps the most beautiful tree of tropical climates. Other productions, such as coffee, ginger, pepper, sugar, ground-nuts, indigo, cotton, and arrowroot are very prolific, and yield large crops. Coffee is indigenous to Liberia, and is frequently seen wild in the woods, but the cultivated plant yields about the finest coffee in the world, equalling Mocha or Java. The arrowroot tree (a tender plant) grows to the height of two or three feet. But one of the most important productions of Liberia is the palm tree, which grows to about 20 feet high, and produces an abundant supply of oil. These trees can be seen in any part of Liberia, and are a most valuable source of revenue to the state and to private enterprise. In addition to the above, a plentiful supply of gum and frankincense is also found. The forests of Liberia produce most valuable timber—rosewood, mulberry, mahogany, oak, saffron, hickory, poplar, and the celebrated gum elastic, or rubber tree. The latter is now in great requisition, and is largely used in the various industries of the world. Medicinal plants of all kinds abound, and the *Croton tiglium*, from the seed of which the croton oil is extracted, is very plentiful.

The animals in Liberia comprise the elephant, leopard, crocodile, hippopotamus, porcupine, wild hog, boa-constrictor, several varieties of the deer, and the ape. Elephants are very numerous, and a regular business is carried on for hunting and killing them, to obtain the ivory of which their tusks are composed, and is a great source of revenue. Monkeys, particularly the chimpanzee (or monkey-man), is often seen as large as an ordinary-sized individual. They are very powerful, as well as very active. Besides the above, the guana, the ichneumon, the sloth, the beautiful and ever-changing chameleon, many varieties of lizards, and several species of ants, may frequently be seen. In speaking of ants, there is one variety or species very remarkable, in consequence of the immense conical mounds of earth which they rear, and in which they make their nests. These mounds are sometimes ten or twelve feet high, and eight or ten feet in diameter at the base. The ants are about the size of the large black ant in the United States. The queen, however, is much larger—some of them two inches in length, and nearly two inches in circumference. In the interior of the mound, about half-way from the bottom, is a large vaulted chamber, the floor of which is very hard and smooth. In the centre of the floor is the nest, in the inmost recess of which lives the queen in luxurious ease, accompanied by the king, whose size does not

vary much from the ordinary ant, but who is easily recognised by a striking difference in physical conformation. When the queen dies, or is captured, all the ants desert the hill, which is left to "crumble into dust again." Many of these deserted mounds may be seen in almost every part of Liberia. Another species of ant (familiarily known by the name of "Driver") is still more remarkable. They are about the size of the black ant of America—that is, about one-fourth to one-half of an inch in length. They may frequently be seen marching along in the most systematic order and regularity of movement. They move in a solid compact column of great length, and they appear to be under the direction of able leaders and rigid disciplinarians. No common obstacle turns them out of their course, and who ever is so unfortunate as to come in their line of march will have to pay for his temerity, and will be reminded to be more careful in future. Hundreds seize fiercely on the intruding foot, and the unwary object of their vengeance is compelled to retreat from the scene of attack. These tiny warriors are very troublesome, but are exceedingly useful in expelling noxious vermin from every place into which they may enter in the course of their perambulations. Whenever a battalion of drivers enters a dwelling-house, the inmates are obliged for the time to yield undisputed possession, at least of that part of the house which the little warriors may be searching. They are not, however, always unwelcome visitors, for they never fail to expel rats, mice, and every species of vermin, making a clean sweep as they go. Whenever they come to a small watercourse, the larger and stronger ones dexterously form themselves into an arch by clinging to each other, thus making a bridge, over which the smaller ones pass dryshod. Even in their ordinary march over level ground they seem to cling to each other in a solid mass, the stronger ones occupying the flanks, and arching themselves over the weaker ones, who occupy the centre, and who are thus protected by the others. All kinds of animals, both large and small, are afraid of the drivers, nor have they any regard to size in the object of their warfare. They are very useful in chasing or killing snakes, lizards, scorpions, centipedes, &c., which, were it not for the drivers, would be exceedingly troublesome and even dangerous. Whenever they visit a house they search it all over, and expel every living, moving thing that they find, after which they retire peaceably, and yield possession to the former occupants. They make their nests beneath the surface of the ground, and, I presume, they sally forth from their quarters only in search of food, at which times the line of march is sometimes a hundred yards or more in length.

The principal domesticated animals are bullocks, or beeves, cows, goats, swine, geese, turkeys, ducks, and chickens. Beeves are brought into the settlement for sale by the natives, and they

are sometimes raised by the citizens. They may be raised easily in any desirable quantity. Cows are numerous, but they do not give much milk. Some of the cows, which are brought from the interior, one or two hundred miles from the coast, are as large as ordinary cows in the United States, but they do not give half so much milk. If properly attended to, however, I think they would afford milk much more plentifully. Sheep and goats can be very easily raised in Liberia, as easily as in any other part of the world, and they both afford good wholesome animal food. The sheep are covered with hair instead of wool. The goats furnish very good milk. Swine do not thrive so well in Liberia as in some parts of the United States. Within a few years past turkeys have become much more plentiful than they formerly were. Perhaps in no other part of the world can chickens be raised more easily and more plentifully than in Liberia. With very little trouble every family may always have a sufficient supply of chickens. Horses are very numerous in the interior, within three hundred miles of the coast, but they do not thrive well in the settlement, perhaps in consequence principally of the want of proper management. They are occasionally brought down by the natives, and some of them are very beautiful. They are small, seldom more than twelve hands high, but they can rarely be used to much advantage as draft animals in the present settlement of Liberia. But for all necessary purposes the native oxen can be used as a substitute for horses. Some of the small bullocks can be seen broken to the yoke and working steadily and effectively. The Liberians, however, have not yet given so much attention to the breaking and working of horses and oxen as they ought to have done. I trust that the time may not be far distant when the plough and the cart will be much more extensively used than at present.

I have spoken of the government, of education, of the various productions, the natives and tribes, the climate, and the natural resources of Liberia. There remains one other topic—the most important of all—namely, the religious aspect of this dark continent. In approaching this subject I am indebted to the various channels of information, reaching me through my position, from verbal statements made me by travellers and others, and from the monthly reports of the American Colonisation Society; and, above all, the evidence culled from the work of Dr. Blyden, who thus speaks of the Roman Catholic Church. He says: “Another plan of propagating religion in Africa, through indigenous agency, is followed by no Christian church with greater zeal and determination than the Church of Rome. That church, ever ready to recognise and utilise those elements in human nature which can be made subservient to her interests, is now everywhere educating Africans for the African work. We are

convinced that the only hopeful and effective way of procedure in respect to Africa is that which may be summed up in the words—the conversion of Africa by Africans. Christian black settlements ought to be attempted all over Africa, even, if need be, as among the Mohammedans, after the difficult and costly manner followed by Monsignore Comboni. The task is full of hardship, but no other system will avail. Whether it will be practicably possible to organise bands of the Catholic Africano-Americans for the settlement and conversion of Africa, as their Protestant brethren, who sail to Liberia in numbers varying annually from two to five hundred, are organised for that very purpose—remains to be proved. Large funds are required—hard heads and generous hearts to direct and carry out such an enterprise; but genuine faith, hope, and charity are Divine and creative forces, and we must look for great results where they exist and are brought into energetic action.”

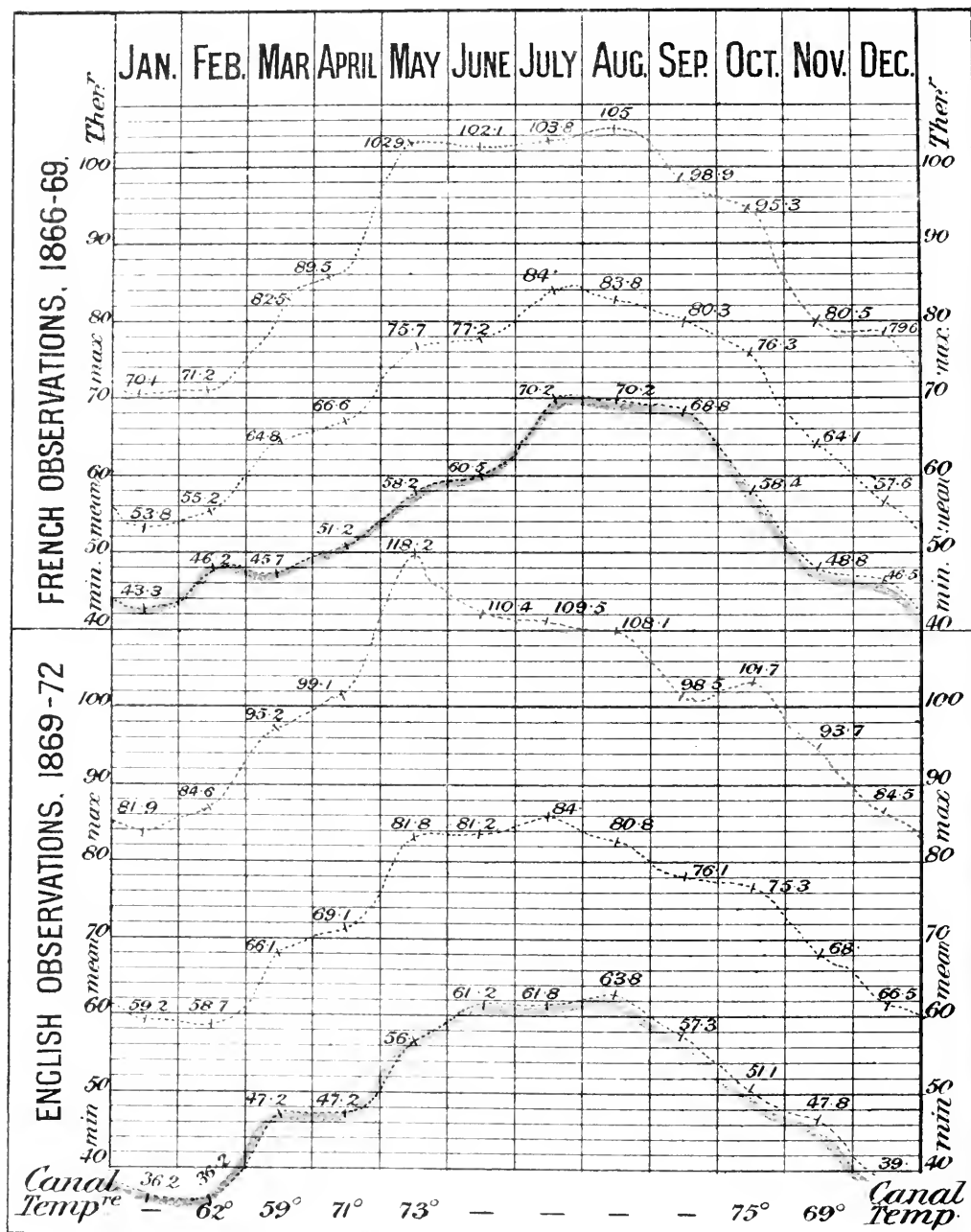
The late Father Pierre Bourzeix, a zealous missionary, and the superior of the Congregation of the Holy Ghost, in 1886 settled in Monrovia, with a small community of fathers, for the purpose of establishing the Catholic Church there, and on his return to Rome, for the purpose of obtaining additional fathers—and at the earnest request of the president, nuns for teaching the girls, and sisters of charity for the hospitals—he unfortunately broke down in health from excessive labour, and died there. His work, however, is being energetically carried on. When the death of the good Father Pierre Bourzeix was known in the capital, universal and most sincere regret was felt and sympathy expressed to his *confrères*, from the president downwards, for Father Pierre was a great favourite, gentle, kind, unsparing of himself, and he gave his life for the work.

The greatest hindrance to propagating Christianity is the liquor traffic carried on, so it would appear, by British and foreign traders. Professor Stewart, of Liberia, estimates that for every missionary who goes to Africa 70,000 gallons of liquor are sent to that country, producing untold misery to a people wholly free from the use of intoxicants until the trader appears. It is also, as we have seen, of the deepest importance to counteract the spread of Mohammedanism, the direst and most powerful enemy of Christianity in Africa.

I hope that what I have said will, at least, interest you in Liberia, and that the country will be better known to you than hitherto.

CURVES OF TEMPERATURE AT SUEZ.

before and after opening of Canal-1869.



THE METEOROLOGY AND CLIMATE OF SUEZ BEFORE AND AFTER THE OPENING OF THE CANAL.

(See Diagram.)

Communicated by W. G. BLACK, F.R.C.S.E., F.R.M.S., Surgeon-Major, Edinburgh.

[Read to the Members in the Library, November 26th, 1888.]

[The following statement of the *Climate of Suez Port and Town*, both before and after the opening of the Maritime Canal, is compiled from records of Meteorological observations taken on the spot, which had been furnished me. The set from 1866-69 was taken by Mons. Brittain, agent de telegraphe, residing at the station of Suez for the works during the operations of excavating the canal, and up to the opening of it for passage of ships in 1869. The set from 1869-72 was taken at the military hospital, situated on the west side of the town, by the medical officer in charge, Dr. J. A. Woolfreys, for departmental purposes. They appertained to the usual establishment kept up there before and during the canal period, and which is now reduced or withdrawn, owing to troopships now going direct through.]

Mons. Brittain, Agent de Telegraphe Canal Company, on Meteorological Observations taken at Suez during the Years 1866 to 1869. With Tables appended and comments.

IN these tables the maxima and minima indicate the highest and lowest degrees during the month, and the mean is the result of these observations taken daily at 6 a.m., 12 o'clock noon, and 9 p.m. They were taken during the construction of the Suez Canal and before it was opened in 1869 for traffic.

Winds.—The prevailing winds are north and north-west, the former of which, by their being from the Mediterranean Sea, make the heats of summer supportable to the European resident or traveller. The hottest winds are the khamseens, southerly winds, which in Italy are called siroccos. They commence in April and terminate in June, coming frequently from the west, and last in general from one to two days, and but rarely persist to the third day. At the time when the khamseen ceases, it is ordinarily replaced by an etesian wind from the north, which arrives with terrible impetuosity. The sky takes a yellow colour, the air is filled with fine sand by the two winds, which here ascend, and opposing each other produce a whirlwind. The prospect is obscured to such a degree that it is impossible for you to know in what direction to fly from the dark and dangerous storm of the desert. When we were at Ghebil Gerroffe this phenomenon was so pronounced that a rain of yellow sand, extending round on all sides, made such an impression that we were struck with fear of suffocation.

Thermometer.—The height of the mercury during the greatest heats of summer seldom reaches to 48° Cent., or 120° Fahr., and frequently goes down to 7° Cent., or 45° Fahr., during the cold of winter.

Atmosphere.—The air is generally dry and pure.

The *hygrometer* maintains a low register of 15° to 20° of its scale in the dry season of spring, and rises to about 50° to 65° of its scale in the hot month of August. In the days of misty weather the *evaporation* of the water reaches its maximum, and the *evaporisation* of the waters of Lake Timsah (Canal of Sweet Waters) and the Bitter Lakes rapidly takes place.

Rain.—Rain at Suez is very rare, and it is of short duration, and only falls on two or three days of the year.

Hail.—This is almost unknown. Some was seen for the first time in 1863 at Toussoum and at Ghebel Mariam, for the second time at several points on the canal at Suez, and at Cairo some had been seen in the gardens of the city here and there. The old people of the country assured me that that was the only year it had hailed in Cairo in their recollection.

The winters are generally good, and the evenings most delightful, particularly when they are lighted up by electricity.

Remarks upon the above French Tables of Observations at Suez for the three Years 1866-69, made before the opening of the Suez Canal, by W. G. Black, and here summarised.

During this period the *barometer* generally maintained a high figure, the means having been for 1866-67 30·06in., for the second year 29·89in., and for the third year 29·82in. The cause of this high pressure is probably due to the latitude of the place (29° 58' N.) and the dryness of the air, and being within the region of the calms of Cancer, where it is normal.

The range from mean maximum to mean minimum was also small, having been in 1866-67 30·14in. to 29·75in., or ·39in.; in the second year from 30·22in. to 29·70in., or ·52in.; and in the third year from 30·16in. to 29·77in., or ·39in., which may be due to the absence of rains and storms.

In the year 1866-67 the highest monthly maximum was 30·32in. in December, and the lowest monthly minimum was 29·48in. in June, or ·84in. of difference; in the second year the former was 30·77in. in January, and the latter 29·55in. in April, or a difference of 1·22in.; and in the third year the highest was 30·40in. in December, and the lowest 29·57in. in August, or ·83in. of difference.

Thermometer.—Its variations on the other hand are great, both from winter to summer, and also during the month and day, the mean monthly in the year 1866-67 having ranged from lowest 55·3° in January to highest 84·5° in July, or a difference

of 29.2° ; in the second year from lowest 55.2° in January to highest 83.5° in July, or 28.3° of difference; and in the third year from lowest 50.8° in January to highest 84.8° in August, or 34° .

The minimum column shows a great range of temperature, as in 1866-67 it varied between 45.5° in December to 70° in July, or 24.5° ; in the second year the lowest was 41.8° in January and the highest 70° in July, or 28.2° of difference; and in the third year the difference was from 42.8° in January to 71.7° in August, or 28.9° .

The maximum column shows a range in 1866-67 from 71.5° in January to 105.6° in July, or 34.1° of difference of temperature; in the second year it ranged from 70.8° in January to 107° in August, or 36.2° ; and in the third year the difference was from 68° in January to 104° in August or 36° .

M. Rayet states that the *rains* were more frequent towards the finish of the canal, when the Lakes Timsah and Bitter were filled in with the sea, than they were five or six years earlier at the commencement of the works.

Thick *mists* also have begun to arise along the canal and lakes, as dense as any in Paris or London, which did not exist before the water was admitted.

The climate of Port Said is marine and milder than either those of Ismaila or Suez, which are inland ones entirely, and hail and ice occur now at them, which have never been seen at the former.

On looking at the table of *curves* of the temperature at Suez it will be observed that the character of the curves is somewhat altered by the advance of temperature taking place earlier in the year after the opening of the canal than before, and retreating sooner again in the autumn. As the only difference that has occurred in the physiography has been the opening of the canal, so it may be inferred that the new sea currents and tides introduced into the harbour of Suez by the canal have affected the climate of the place.

As in the spring the *tides* and currents in the Red Sea tend to increase and flow north from the action of the N.E. monsoons, so more and warmer water will enter the canal from the Gulf of Suez, and raise the temperature of the station.

But in the autumn, owing to the action of the S.W. monsoons, the tides and currents of the Red Sea tend to flow outwards to the south, leaving behind them colder water than before the opening of the canal, increased by the drain from the Mediterranean Sea, now opened up through it.

Temperature Observations at Suez for the three Years 1869-70, 1871, 1872, made by Dr. J. A. Woolfreyes, A.M.D., after the opening of the Suez Canal in 1867, with Tables appended and comments.

The mean *thermometric* readings appear higher for these three years than those taken by the French observer in 1869, but are pretty constant, having been in 1869-70 at 71.7° , for the second year 71.6° , and for the third year 73.1° ; but the figures are not absolute, owing to want of regularity of observations during the period.

The ranges of mean maximum and minimum are also higher than the French ones, as they were estimated at from 88.5° to 50.1° for 1869-70, or 38.4° of range; for the second year from 98.6° to 48.8° , or 49.8° of range; and for the third year from 100° to 51.4° , or 48.6° of range.

The total mean ranges of mean maximum and minimum in the two sets of tables (French and English) are represented by 90.1° and 55.8° or 34.3° of difference and 95.7° and 50.1° or 45.6° , showing that the differences of temperature were higher after the opening of the canal than before at Suez.

Again, the ranges of *mean* temperature from summer to winter were, in 1869, from 85° in June to 61° in December, or 24° of difference; in 1870, from 86.3° in July to 60.5° in December, or 25.8° of difference; and in 1871, from 86° in August to 59° in January, 1872, or 27° of difference.

The ranges from maximum to minimum have been considerable, the readings having been seen as low as 39° in December, 1869, and as high as 107° in July, or 68° of difference; and in 1870 they ranged from 39° in December to 109° in August, or 70° of difference; and in 1871 from 39° in December to 121° in June, or 82° of difference.

All these ranges of temperature are greater than in the French estimated ones by 73° to 62.2° for the three years before the opening of the canal.

The differences of temperature in the months of winter and summer also indicate much the same thing, the readings having been, in 1869, from 39° to 84° in December, or 45° of difference; and in July from 57.4° to 107° , or 49.6° of difference.

In the year 1870 the readings in December were from 39° to 85.5° , or 46.5° of difference; and in August from 64° to 109° , or 45° of difference; and in 1871 they ranged in December from 39° to 84° , or 45° of extent; and in June from 59° to 121° , or 62° of extent of range.

These later English observations are therefore found to be generally higher than the French set taken previous to the opening of the canal by 50.3° to 34° of range of temperature.

From observations taken of the temperature of the water of

the canal at Suez for a few months of the years 1871-72 it would appear that it fluctuated somewhat above or below the mean temperature of the air at Suez town, but not in accordance with the lines of maximum or minimum temperature.

There was an average of 68° for the six months of the winter period, and a range of 16° from highest, 75° , in October, to 59° in March, the lowest.

It has been thought that the temperatures and climate of the Suez district would have become mitigated by the canal, but these returns tend to show that such result is not yet established, but rather the contrary is the case so far as observed.

In looking over the added results for the three years before and the three years after the inauguration of the canal, the monthly tables show that the temperatures of *summer* have risen as to maximum and fallen as to minimum by an average of 102.7° to 111.5° for the former, and by an average of 64.7° to 60.7° for the latter for the four months.

Those of *winter* have risen also in maximum and fallen in minimum by an average of 75.4° to 86.2° for the former, and by an average of 46.4° to 39.8° for the latter, for the four months of the season.

On the whole the mean temperature has risen both for summer and winter from 80.4° to 81.9° for the one, and from 57.7° to 61.8° for each four months, and for the whole year from 69.8° for the first three years to 72.1° for the last three years.

Speculation might assign the result to access of warm water into the canal from the heated Red Sea, and of cold water from the Mediterranean Sea at different seasons of the year according to the currents.

It has been discovered on partial examination that in some of the summer months a flow takes place in the Port Said half of the canal to the Mediterranean Sea, and that a tidal flow and ebb takes place in the Suez half from the Red Sea from 4ft. to 6ft. fall and rise, gradually diminishing inwards.

The summer at Suez is characterised by high figures of the thermometer (100° - 120°), but there may also be very low ones (32° - 44°), so that the oppressiveness of the constant heat is often much mitigated by cool nights and sea breezes.

The winter also exhibits very high temperatures frequently for the season (80° - 90°), but they often descend to 30° or 40° as in Britain, so that the climate there is then very agreeable to the European resident.

The *barometer* throughout the seasons has but a small range. It is very high in the winter months all along, but the whole range from the lowest in spring (29.59 in.) to the highest in winter (30.49 in.) does not exceed an inch of pressure.

These slight variations seem to be coincident with the prevalence of the etesian or northerly winds in the summer and

the southerly winds and calms in the winter connected with the anti-cyclonic air then existing in the Arabian seas. On the whole the barometer appears not to be so indicative of the effects of the climate on the human constitution as the records of the thermometer of the influence of the temperature of the air.

In comparing the temperatures with those of Cairo, they were found to be cooler by 72.1° to 74.7° for the annual means, and also the four summer months by 81.9° to 88.3° of monthly means; but the four winter months showed that the air was rather warmer than that of Cairo by 61.8° to 61.4° of monthly means, probably owing to the tidal flow to the north from the Red Sea, assisted by the warm southerly breezes.

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MONTHLY SUMMARY OF METEOROLOGICAL OBSERVATIONS TAKEN AT SUEZ BEFORE AND AFTER THE OPENING OF THE CANAL.

Period.	Before opening. June, 1866—May, 1869. Brittain.			After opening. June, 1869—May, 1872. Woolfreyes.			Before opening. June, 1866—May, 1869. Brittain.			Canal. Temp. 1871.
	Thermometer.			Thermometer.			Barometer.			
Months.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	
June	101.0	60.5	77.2	110.4	61.2	81.2	30.08	29.62	29.93	
July	103.8	70.2	84.0	109.5	61.8	83.7	29.94	29.62	29.79	
August ...	105.0	70.2	83.8	108.1	63.8	80.8	29.93	29.67	29.85	
September.	98.9	68.8	80.3	98.5	57.3	76.1	30.03	29.76	29.95	
October ...	95.3	58.4	76.3	101.7	51.1	75.3	30.10	29.71	29.95	75°
November .	80.5	49.8	64.1	93.7	47.8	68.0	30.33	29.87	30.20	69°
December ..	79.6	46.5	57.6	84.5	39.0	61.5	30.32	29.87	30.10	
January ...	70.1	43.3	53.8	81.9	36.2	59.2	30.49	29.78	30.18	
February...	71.2	46.2	55.2	84.6	36.2	58.7	30.32	29.91	30.23	62°
March	82.5	45.7	64.8	95.2	47.2	66.1	30.18	29.59	29.94	59°
April	89.6	51.2	66.6	99.1	47.2	69.1	30.21	29.62	29.98	71°
May	102.9	58.2	76.7	118.2	56.0	81.8	30.06	29.64	29.90	73°
Means ... }	90.1	55.8	69.8 20.73	95.7	50.1	72.1	30.17 766.60	29.74 755.43	29.96 761.01	68° Fr.
Ranges .. }	34.9	26.9	30.2	36.3	27.6	25.0	18.46	9.56	11.98	16° Fr.

SUMMARY OF METEOROLOGICAL OBSERVATIONS FOR SUEZ FOR SIX YEARS, 1866-72, AT THE TIME OF THE FINISH OF THE CANAL.

OBSERVATIONS BY MONS. BRITTAİN, AGENT DE TELEGRAPHE.

PERIOD.	June, 1866. May, 1867.			June, 1867. May, 1868.			June, 1868. May, 1869.		
	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.
BAROMETER.									
Means	30·14	29·75	30·05	30·22	29·70	29·89	30·16	29·77	29·82
Ranges	·44	·51	·40	·87	·30	·70	·49	·29	·37

THERMOMETER.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.
Means	90·3	56·3	70·3	91·1	54·5	69·5	88·7	56·5	69·8
Ranges	34·1	24·5	29·2	40·0	28·2	29·3	36·0	28·9	34·0

OBSERVATIONS AT MILITARY HOSPITAL, SUEZ. DR. WOOLFREYES, A.M.D.

PERIOD.	June, 1869. May, 1870.			June, 1870. May, 1871.			June, 1871. May, 1872.		
	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.
THERMOMETER.									
Means	96·8	50·1	71·7	98·6	48·8	71·6	100·0	51·4	73·1
Ranges	34·7	24·0	25·0	38·0	34·5	28·9	39·0	31·0	27·0

Observations by M. BRITTAİN, taken at 6 a.m., 12 noon, and 9 p.m.

Observations by Dr. WOOLFREYES, taken at 7 and 9 a.m., and 3 and 5 p.m.

Suez.—Lat. 29° 56' N.—Lon., 32° 33' E.

Tides.—S.T., 7ft.—N.T., 4ft. rise and fall.

Iron Ore in Sweden.—The bridgework for the line of railway from the port of Lulea to Gellivaara, which crosses the Arctic Circle, and which has newly been opened, was supplied by England. England has also supplied the engines, which are of Manchester make, and ore wagons will be bought in Birmingham. At Gellivaara there are large iron ore deposits, and Consul Drummond Hay, of Stockholm, who has visited the place, reports that, according to the charts and measurements of the Swedish Geological Survey Commission in 1874 the superficial area of the mountain in which the ore lies has been computed at 5,222 acres, and of the iron-ore lodes at 161 acres, or about 3 per cent of the total area. Out of these about 40 acres can be pronounced free from impurities. They are situated in the veins running from the summit called Välkommen to that of Kungsryggen, and on the heights of Koskullskulle and Kapten's Höjden. The latter lodes measure about 15 acres, and will be the first mines opened up by the railroad. Most of the ore lies near the surface. The ore has been tested by Messrs. Johnson, Matthey, and Co., Friedrich Krupp, and the Chatterley Iron Company Limited, with favourable results.—*Industries.*

The Krupp Works.—The latest statistics relating to the great Krupp establishment show that in 1833 it had 9 workmen; in 1848, 74. In July, 1888, it employed 20,960 men, of whom 13,626 were at Essen, and, including the families of the workmen, it supported a population of 73,769 souls, of whom 24,193 lived in the houses it provided. There were at Essen alone 1,195 furnaces, of various constructions, 286 boilers, 92 steam hammers of from 100 to 50,000 kilogs, 370 steam engines, with a total of 27,000 horse-power, 1,724 different machines, and 361 cranes. Of coal and coke 2,735 tons were used daily, and 11 high furnaces of the latest construction produced nearly 600 tons of iron per day.

RUSSIAN RAILWAYS IN ASIA.*

[Read to the Members in the Library, December 12th, 1888.]

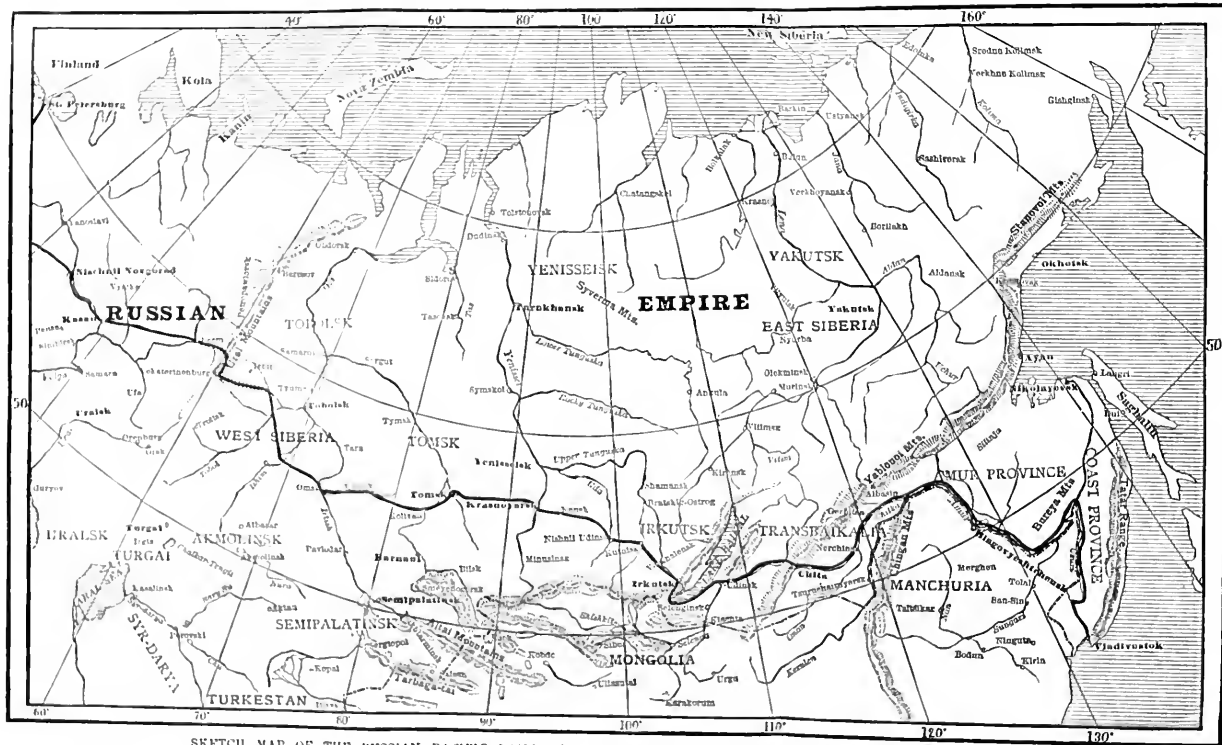
THE FUTURE OF THE RAILWAY IN ASIA.

SILENTLY and unobtrusively, but still in almost breathless haste, Russia, England, France, and the Netherlands are working away, with different interests, at a work which is to a certain extent a common one—that of opening out the colossal and richly-gifted continent of Asia, hitherto so little regarded by Europe, to European culture and trade, by means of a widely ramifying network of railways. That Russia and England particularly unite political and strategical objects with their vast railway constructions scarcely needs remarking, for a glance at the map of Asia is sufficient to convince one that, sooner or later, Russia and England must come to a decisive contest in Asia, on which depends whether or not England will so strengthen her position in India as to bring to a halt the violent pressing forward of Russia towards the East of Asia.

1. England now possesses in India a widely-extended railway network, which traverses the peninsula from Lahore in the north to Cape Comorin in the south, from Hyderabad in the west to Calcutta in the east, and brings the natural and industrial treasures of the richly-endowed India to her ports. Hitherto India has been shut in on all sides within her own railway network; for neither on the west, towards Persia and Russia, nor on the east, towards French Indo-China, had the Anglo-Indian lines any connection; whilst at the north the heaven-sweeping Himalayas offered a natural barrier against every intruder. But in a very few years all this will be changed; for other European powers, as Russia and France at present, will purposely push their lines close up to the borders of the British possessions.

2. If we now turn to survey the railway projects of Russia in Asia, we must admit that these projects are bold and vast in their design, and most important in their commercial no less than in their strategical significance. The Russo-Asiatic Pacific Line, already begun, is to run from the Black Sea through Bokhara and Turkestan, right up to Siberia. It will then bend eastward, and girdle the Chinese empire with a belt of steel rails, and eventually be continued even to Corea. Thus it will almost traverse the whole vast Asiatic Russia. At present, the line begins at Batum, on the Black Sea, runs by Tiflis to Baku; starts again beyond the Caspian at Usun-Ada, running *via* Askabad, Merv, and Bokhara to Samarcand. From this place, the extension of the Pacific line is to go on the one hand *via* Tashkend to Tomsk, on the other to Omsk, and at both places to join the Siberian Pacific line. The Perm-Pjumen line is already finished. Thence the main line is to continue *via* Omsk, Pomsik, Yakutsk, to Vladivostok. Here the railway is to have its junction for branches to Corea and China, whilst the Trans-Siberian line itself is to be joined by a second line (Tashkend, Orenburg) to European Russia. Already work is in progress southward from Merv and elsewhere for Teheran, for lines which will run close up to British India.

*From the *Berlin Germania*, October, 1888. Translated by the Rev. L. C. Casartelli Ph.D., M.A.



SKETCH MAP OF THE RUSSIAN PACIFIC RAILROAD.

[Reprinted with the Article, by permission of the Editor of Science.]

3. France is busy in Indo-China at laying down a railway network, meant to unite Pegu in the west and Tenasserim in the south with China in the north; whilst a coast line is to run along the entire east coast of Indo-China and join all the seaports together.

4. Still vaster and bolder are the projects of China, which are intended to cross the giant empire from south to north, and from the west to the shores of the China Sea and Yellow Sea.

5. Of the islands, Java and Nippon (Japan) already possess extensive railways, whilst in this respect Ceylon is backward. In Japan, lines are being built with such activity that at no very distant date it will have a total length of nearly 1,200 miles. A line is being constructed in Sumatra, in order to bring the rich coal treasures of the Ombilin river down to the coast. Also one in Manila, to bring sugar and hemp to the seaports.

This survey of the projected railways of Asia, some of which are already being carried out with great energy, makes it probable that Asia will very much sooner be opened to European trade and culture, even in its most remote parts, than the mere coast region of Africa can be won for civilisation. This is easily explained. In Asia, a civilisation resting on a basis of remote antiquity, has had, indeed, a long pause, but a certain civilisation—although hitherto hermetically sealed up from European influence—has continued to exist. The ancient Asiatic colossus, in a certain sense, needed only to be awakened to new life, and European culture finds a basis there on which it can build for future reforms. It is quite different in Africa, where the European colonist finds the absence of civilisation even on the coast, which must frighten him from following too eagerly his desires for the great natural treasures of the continent, before the savage has laid aside his uplifted axe or his drawn bow.

A RUSSIAN PACIFIC RAILROAD.—(*See Map.**)

[Read to the Members of the Library, December 12th, 1888.]

The question of a rail connection of the Baltic with the Pacific Ocean through Russia and Siberia has frequently been discussed, and recently steps have been taken to carry out part of this great enterprise. Political as well as economic reasons make the establishment of a better connection between Siberia and Russia appear very desirable. The remoteness of the Amur province from the mother country makes the security of this possession appear doubtful, and the immense distance of Siberia from any market renders its produce almost valueless.

The experience of American railroads shows that there is no better means of developing the productive capacity of a country than by the establishment of railroads. Siberia is capable of becoming a highly-productive country, and the limits of its productiveness can hardly be conceived. The history of the settlement of the American and Canadian North-West Territories shows that an excessively continental climate is not a serious drawback to the development of a country.

* This article and map we are permitted to republish through the kindness of the proprietor of *Science*, Mr. W. D. C. Hodges, New York.

Southern Siberia has great agricultural resources ; large tracts of land are well adapted for stock-raising ; and its forests and mineral resources are of great value. While precious metals yield even now a considerable income, its rich coal and iron deposits have hardly been explored. The abundant supply of furs and fish needs only to be mentioned. At present a large portion of the grain grown in this country is used for distilling alcohol, as there is no market for it.

The only thing needed is better means of communication. The large rivers of Siberia, which flow into the Arctic Ocean, are not available for this purpose, as their mouths cannot be reached regularly from Europe, and as they are frozen during the greater part of the year. Numerous attempts have been made to ascertain the feasibility of a regular intercourse between the Atlantic ports and the mouths of the Siberian rivers ; and, from the experience of Captain Wiggins, it would seem that the route is not so impracticable as it appeared to be. He succeeded eleven times in making the journey from England to the mouth of the Yenissei, and up to Krasnoyarsk, and proved that this trade may become of some importance, although the difficulties are so formidable that only the remoteness of central Siberia makes its use practicable. Another project of making the great rivers of Siberia more useful is that of a railroad from the Obi to a point west of the Strait of Kara. Although this plan might help to develop to a certain extent the resources of western Siberia, it would hardly prove adequate to opening the most productive parts of this vast country.

In summer the rivers afford a good means of intercourse, and plans have been made to improve them. The most important of them is the connection of the Obi and Yenissei by means of a canal, work on which is in progress. When this canal is completed, the following line will be open to commerce : from Tyumen, the terminus of the Perm-Tyumen Railroad, down to Tobolsk, and, following the Irtysh, vessels will reach the Obi at Samarovsk. From here they will ascend the latter to the point where it approaches nearest to the Yenissei. Following the canal, they will reach the Yenissei, which is descended down to the confluence of the Upper Tunguska, which comes from Lake Baikal. In east Siberia the Amur affords good means of communication. The route follows the Chilka, and its tributary the Ingoda, as far as Chita. The distance between this point and Lake Baikal is not very long.

It seems that it has been decided to build first those portions of the Pacific Railroad which will supplement those sections which are open to river navigation. This requires the building of the sections from Vladivostok to the mouth of the Usuri, from Chita to the Selenga, and from Irkutsk to Tomsk. The last is necessary, as the Upper Tunguska would require very expensive regulation. Should these works be completed, and reasonably fast-going steamers be put upon the rivers, the development of Siberia will receive a strong stimulus.

The effect of this improved inland connection upon the development of manufactures and industries will be great. At present eighty per cent of the total manufactures of Siberia belong to the territories Tobolsk and Tomsk. According to the reports of the Bureau of Statistics, there are 2,300 factories, which employ 12,500 men, and produce 14,000,000 rubles' worth of goods annually. The principal manufactures are those

which use raw animal material ; 500 tanneries produce goods valued at 3,000,000 rubles, and 150 tallow factories have an annual output of 2,000,000 rubles in value. Next in importance are manufactures based on raw vegetable material. The rich mineral deposits of Siberia are not yet opened to any great extent. The industrial development of this region does not date back farther than about fifteen years. It was only then that modern machinery was introduced ; and the subsequent improvement in the quality of Siberian manufactures has secured for them an extensive sale in Asia. The slow progress of these manufactures will be greatly accelerated as soon as cheaper and more rapid communication with Europe has become possible.

One of the principal considerations which recommends the construction of the Siberian Pacific Railroad is the remoteness and isolation of the Amur and Coast Provinces. At present there exist hardly any roads in this region. Communication is possible only on rivers which are navigable in spring and autumn, while in summer and winter intercourse is interrupted. In winter, sledges are used for travelling, while it is impossible to transport freight. What little trade there is is almost exclusively in the hands of Americans and Chinese. The whole Russian population of Transbaikalia, the Amur Province, and the Coast Province, amounts at present to twenty thousand, while immigration from Manchuria is of considerable importance ; therefore the Russian Government attempts to promote the Russian colonisation of this region. The country is rich, but it is too remote to become a Russian colony until better communication with Transbaikalia has been established.

It must not be expected that, even after the completion of the road, the settlement of Siberia will make as rapid strides as that of the American North-West. It is true the Russian peasant is inclined to leave his home, and to look for a more prosperous life east of the Urals ; but it must be remembered that no foreign immigration is possible, or would be allowed, the political aims of the Russian Empire being to Russianise the whole of its territory. As European Russia is not very populous compared to its area, a Siberian emigration will retard its progress in many respects, as its effect will be to produce a lack of the workers necessary to develop its resources.

The proposed railway, if completed, will be of importance not only for the development of the resources of Siberia, but also for the Eastern trade. At present a considerable amount of Chinese goods, among which tea is the most important, is sent overland. The cost of transportation is, of course, enormous, and will be greatly cheapened by the railroad. The present state of this trade may be seen from the following data given by the commissioner of Chinese customs at Tientsin. In 1887 this trade increased by 5,400,000 pounds, or nearly half as much again as in the year before ; while the quantity of brick tea carried by the same route increased 7,300,000 pounds. This remarkable growth of the overland tea trade was due to the unusual luxuriance of the Mongolian pastures, which, providing as they do the only sustenance for the enormous herds of dromedaries almost exclusively used as beasts of burden in these regions, exercise a very great influence on the prosperity of this branch of trade. It was owing to the failure of the grass crop in 1885 that the transport of tea by that route fell so low, great numbers of dromedaries

having died of starvation. The uncertainty of the grass supply, and consequently of the means of transport, has led some Russian merchants to project a Decanville portable railway across the plains of Mongolia from Kalgan to Urga. The motive power would still be supplied by camels; but, whereas fifty thousand of these animals are now employed, it is calculated that ten thousand only would be required to do the same work on the railway, and that with these increased facilities the trade would in all probability be doubled. As in case of failure of the grass supply a sufficient quantity could easily be brought from Siberia by the returning trains, the additional advantage would be gained of more certainty in the means of transport. The carriage of the tea over the mountainous district between Urga and Kiachta would still be effected by camels. An alternative scheme is a railway from Stretinsk to Veringukunsk, on the Amur. A fleet of seventy steamers is running on the Amur, and goods can be conveyed from Veringukunsk to Kiachta by one of the affluents of the Selenga river. Russian steamers would convey the tea from Hankow to the Amur. This route would be entirely under the control of Russia. It would bring the whole profits of the trade into Russian hands, and offer greater financial facilities.

This route, although more expensive than the transport by sea through the Suez Canal, is preferred, as the quality of the tea thus transported is better.

One of the important considerations which induce the Russians to urge the building of the Pacific road is purely political. The Chinese boundary is at present almost unprotected, and it would be extremely difficult to concentrate an army of considerable strength anywhere east of Semipalatinsk. It is true that the boundary as far east as Manchuria is guarded by the best of protections—a vast desert. Still greater weight is attributed to the connection with Vladivostok, the only harbour Russia possesses on the open ocean. Without the railroad, Vladivostok is of very little value, as the Coast Province is not able to furnish provisions for the garrison and fleet. It is hoped that its value will be greatly enhanced by the construction of the railway. A glance at the map will show that the latter follows for a long distance the boundary; therefore, in case of war with China, its safety appears very doubtful, and, indeed, it has been proposed by military authorities that it would be more advisable to build the road farther north.

From an engineering point of view, there are no serious obstacles to the building of the road, except the bridging of the large rivers of west Siberia, and the passing of the enormous swamps of that region, which would probably make the road far more costly than the Transcaspian Railway. There are no steep grades that would present serious difficulties.

The distances of the several sections of the line are given as follows:—

	Miles.
Tyumen to Tomsk	800
Tomsk to Irkutsk	1,050
Irkutsk to Stryelka.....	800
Stryelka to Usuri	1,000
Usuri to Vladivostok	300
Total	3,950

The cost of construction is estimated at from five to seven hundred million rubles. The whole distance from St. Petersburg to Vladivostok is estimated at six thousand miles; and the time necessary for accomplishing this distance, at from sixteen to seventeen days. To this must be added a few days for the journey from Japan and China to Vladivostok, and from St. Petersburg to western Europe. Thus the journey from eastern Asia to Europe might be made in from twenty to twenty-two days instead of from thirty to thirty-five days, which it takes steamers to run from China to England.

It seems improbable that the effect of this road upon the trade of the world will be as important as that of the American Pacific roads. The political condition of Siberia is not favorable to an energetic development of its resources and to an extensive immigration; and the length of the road being so great, it is doubtful whether it would be able to divert the carrying trade to any great extent from the steamers using the Suez Canal route.

Commercial Geography Lectures at the Harris Institute.—The course of lectures on Commercial Geography and History, now being given at the Harris Institute, Preston, by Mr. John J. Cardwell, of St. Bedes College, Manchester, promises to be of great interest and value. The attendance, however, is not nearly so large as the importance of the subject to a commercial and manufacturing community like that of Preston would lead one to anticipate. The course is to comprise twenty lectures. The first two were devoted largely to a description of Lancashire, its physical features and its trade. In the first Mr. Cardwell gave a rapid but extremely interesting sketch of the rise and development of the cotton manufacturing industry in Lancashire. He illustrated the subject by displaying samples of cotton in the raw, and after it had been subjected to the various processes of manufacture, also by diagrams showing the rude mechanism of the past and its gradual development, and by a series of admirable maps. Manufacturing, it appeared, was originally forced upon Lancashire by reason of its enclosed position, which precluded the possibility of an easy disposal of the raw wool that was produced. In 1641 the industry had become well established round Manchester. But the spread of the cotton manufacture was by no means rapid in those early days, owing partly to the rudeness of the machinery, and partly to the inefficient means of transit. Mr. Cardwell proceeded to describe the invention of the fly-shuttle by John Kay, of Bury, in 1738. This enabled the weaver to turn out twice as much work as before, thus accentuating the difficulty which had been previously experienced of obtaining a sufficiency of yarn. The spinning-jenny invented by Hargreaves, of Blackburn, in 1767, and the subsequent developments introduced by Arkwright and others, though bitterly and violently resented by the operatives of the time, gave, as the lecturer showed, an enormous impetus to trade. Water was the motive power chiefly employed, and the earliest mills were as a consequence erected in the vicinity of the rivers and streams. With the invention of the steam engine and its subsequent application to the cotton manufacturing industry in 1785 the trade began to leave North Lancashire, where it had been for some time centred, and to establish itself in the vicinity of coalfields in the southern part of the county. To such an extent had this taken place that the district north of the Ribble had reverted largely to its original pastoral and agricultural character, while those which were formerly waste moorlands, like the district round Oldham, had become important centres of industry. In this way Mr. Cardwell illustrated how the vicissitudes of trade and the growth of towns might be accounted for. He touched subsequently on the invention of the power-loom by the Rev. Dr. Cartwright, of Kent, which was the outcome of a conversation that he had with some Manchester gentlemen at Matlock, and rapidly reviewing the progress of trade during the past century, proceeded to explain how Manchester and other places became important centres. Incidentally, as showing the present position of the cotton industry, Mr. Cardwell stated that there are now 41,298,110 spindles and 546,048 looms at work in Lancashire. The concluding portion of the lecture had reference to the gradual improvements in the means of transit and conveyance of goods.

A HOLIDAY IN EAST AFRICA.*

BY THE REV. LAURENCE SCOTT, OF DENTON.

[Addressed to the Members, December 5th, 1888.]

YOU will not expect me to dwell much upon small details of personal experience, because books of African travel are too familiar to you. I wish to speak of some of the forces now active in East Central Africa, and only to refer to my own experience where it may occasionally happen to illustrate their working. It is familiar to all of you that we have in the Central East African coast three European powers at work—the Portuguese, with a qualified occupation of three hundred years' standing; the English in the Nyassa district, dating from Livingstone's discoveries, thirty years ago; and, quite lately, the Germans.

After leaving Mozambique, I passed through Portuguese territory on my way from Quillimane, the tollgate of the Zambesi, to Blantyre. Now, however weak the Portuguese may be in other parts of their East African possessions, they are certainly a factor—and, perhaps, at the present moment a commanding factor—on the Lower Zambesi and in the Quillimane district. Their power on the mainland, opposite the island of Mozambique—the capital of the whole province—is almost nominal. In an official report made by the Portuguese governor-general in 1883 (and the words are just as true to-day), is this passage: "From the windows of his palace the governor-general is able to look over a country that is completely outside Portuguese jurisdiction." Thus, from their own showing, the Portuguese only have power over a fringe of the coast, and, in fact, over a large part of it, have no authority even on this fringe beyond the immediate neighbourhood of their own settlements. But this is not true of the Zambesi valley, the great high-road to the interior. Here we find elements of Portuguese origin, some of them dating back nearly three hundred years, which will have to be reckoned with, and which, in my opinion, will for some time to come form a great barrier to trade and civilisation in the district of the Lower Zambesi.

In the year 1760, about two hundred years after their first settlement, the Portuguese took a new departure. They then laid the foundation, by royal decree, of a condition of things

* All the illustrations to this paper marked "G" have been kindly lent by the proprietors of *The Graphic*, those marked "U" by the editor of "*Central Africa*," and they will serve to illustrate papers and addresses previously published in this Journal.

which has since grown very much beyond their own control. They considered it essential to their power to attract to their East African possessions European colonists. In order to do this they hit upon a scheme never before tried, I imagine, by a colonising government. They carved into lots the best crown lands of the districts of Sofala, south of the Zambesi, and of the lower Zambesi valley, and dowered any Portuguese woman who was willing to go out there and marry a man of Portuguese extraction with a goodly slice of this land. Males were rigidly excluded from any legal rights of possession. The possession was to be in the female line for three lives. But the bait was not powerful enough, and various governors general gave one or more plots—usually more than one—to daughters of Afrianders and Asiatics. This was the origin of the *Prazos*. The prazo holders have often been at war with the Portuguese during the last fifty years, and hold an almost independent position—they are, in fact, a parcel of semi-civilised half-caste princelings, jealous of their own authority and their old methods of jurisdiction, and who, so far, have shown themselves able to hold their own. These men are now the actual holders of a large region, and in any attempt to open up the country they must be reckoned with.

My information about the Portuguese prazo holders comes from Consul O'Neill, of Mozambique, whose long residence in the country enables him to judge very accurately how far these elements of Portuguese origin can be made useful for commerce and civilisation. His opinion is that they will for some time to come be a great barrier to both in the regions where their power exists. But let us travel beyond the limit of Portuguese influence, let us go up the Shiré to its confluence with the Ruu. There are many signs, especially within the last six months, that the Portuguese wish to push their claims further inland, and even to Blantyre itself. I believe it would be a good thing for the native population and the English missionaries and traders alike, if the Portuguese were told distinctly by our Government that their influence must stop at the Ruu.

From the confluence of the Ruu the Shiré is navigable for about two days' journey northward. It was a real pleasure as we stepped out of our boats at Katunga to be greeted by happy-looking natives with a cheerful "Good morning." It was the first word of English, except from English lips, that I had heard for weeks, and it was not altogether fancy which convinced me that the native population had a freer bearing, a more hopeful and manly look, here than in the Portuguese possessions where slavery still existed down to this generation.

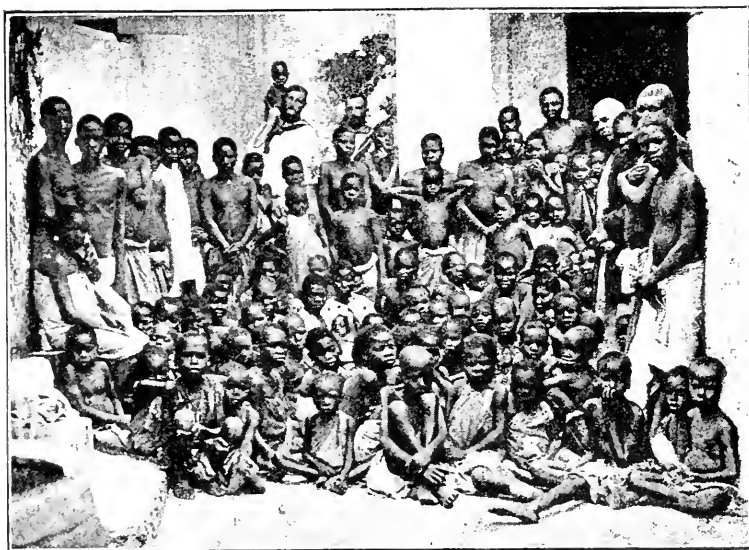
From this point of the lower Shiré valley northward to Blantyre, Lake Nyassa, and thence northward again to Lake Tanganyika, is a legitimate sphere of English influence. It is a region

of great promise, having upland valleys 3,000 feet above the sea, with a really healthy climate, in which whites can work and where fever is almost unknown. People bring fever to Blantyre and Mandala from the river and the lake, but you may live in the upland valleys for years without having a touch of it. There are men in this room far more competent to speak of the fertility of the soil and the prospects of trade than I am; but it is a land well watered, beautiful, and productive. Its one drawback is its distance from a port, the distance of that port from home, and the fact that access by that port is still impeded by many restrictions. In this region English missionaries have been at work for nearly thirty years, and an energetic trading company for more than ten years. Let us glance for a moment at the native tribes with which we have to deal.

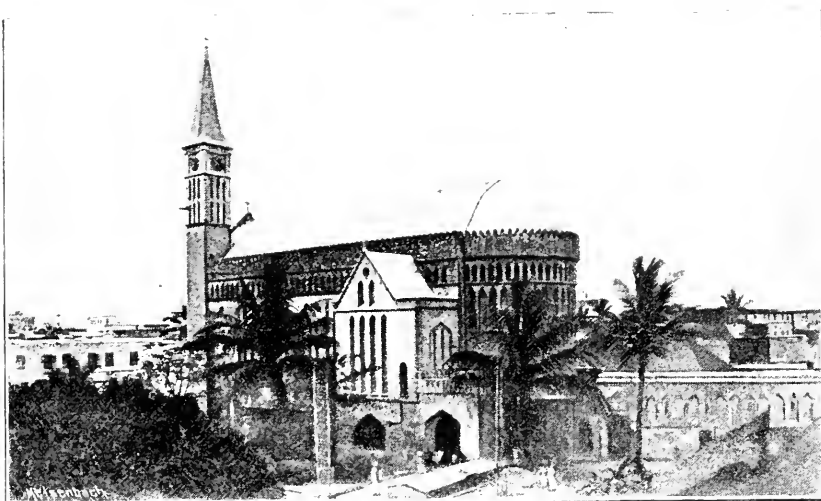
From the Ruw, along the Shiré Valley, past the picturesque Murchison Cataracts, about which are the Manganja people, almost to Lake Nyassa itself, we find the powerful tribe of the Makololo, welded together by native followers of Livingstone, and lately ruled over by a powerful chief, whose death last summer may yet prove to be a political misfortune. Hitherto the Makololo, always friendly to the English, have been able to keep out both the Arabs and the Portuguese. They are a fine, independent race, capable of work, open to civilisation, and competent for self-defence.

On the west of Lake Nyassa, and a little inland, we have the great tribe of the Angoni, a race of Zulu origin—men of fine stature, warlike, brave, and quite capable of holding their own against any Arabs who have hitherto come against them. Further north still we come to a race of natives of a different and, in some respects, a higher type. Their huts are large and well built, with some attempt at ornament and painting. Their streets, or rather the paths between the huts, are clean, and swept out every morning, their gardens well cultivated, their cattle numerous and well cared for. This tribe, or rather series of tribes, of one origin and one language—the Wa-Nkonde and the Wam-Wamba—occupy the extreme north-west and northern shores of Lake Nyassa. On the north-east of the lake are the Yao tribes. In some respects they are the finest race of natives I met with—happy, contented, industrious, when there was need of industry (and few Englishmen are more industrious than that), peace-loving, yet capable of being made into good soldiers, and singularly devoted and friendly to the English. They occupy a lovely and most fertile plain, reaching up into the hills which divide Nyassa from Tanganyika.

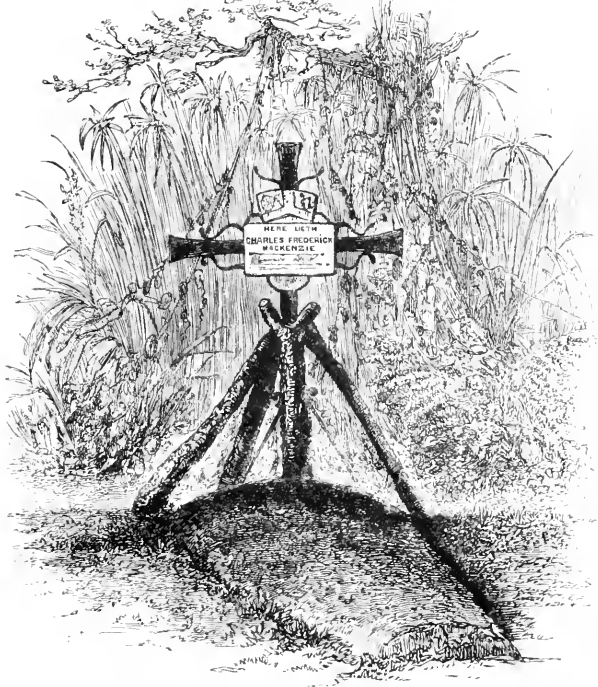
Now I believe that with care and tact you may, in comparatively few years, so unite the Makololo, the Angoni, the Wam-Wamba, and the minor tribes in that district, that they will form, not indeed one nation, but a friendly union, quite capable



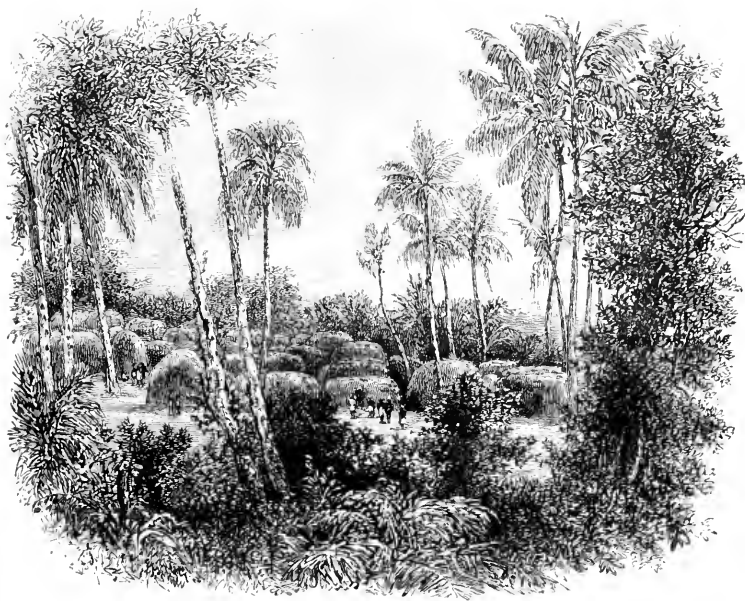
Slaves released from a slave bhow on the East African Coast. Representatives of the various tribes from the Coast to Lake Nyassa, &c. [U.]



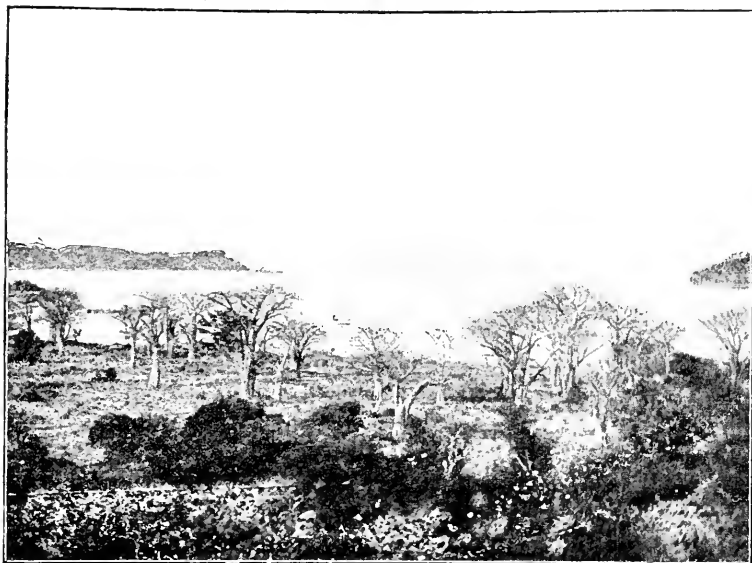
Christ Church, Zanzibar: The Universities Mission Church. Partly upon the spot, which before the year 1872 was used as the public slave-market of Zanzibar, there now stands this beautiful Church. The body of this Church has displaced the huts where the slaves for sale were housed. Bishop Steere acted as Builder, while friends at home sent special donations. The first stone was laid by the Consul in 1873, and exactly seven years later Holy Communion was first celebrated, and two years later still the Builder himself was buried at the east end, inside the Church his own skill had raised. [U.]



Bishop Mackenzie's Grave on the Shiré River. [U.]



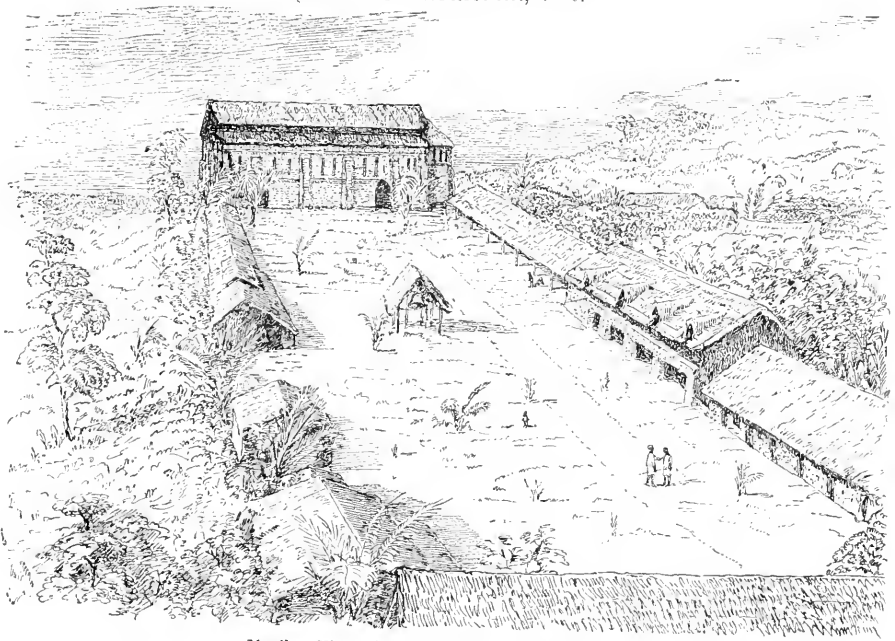
An East African Native Village. [U.]



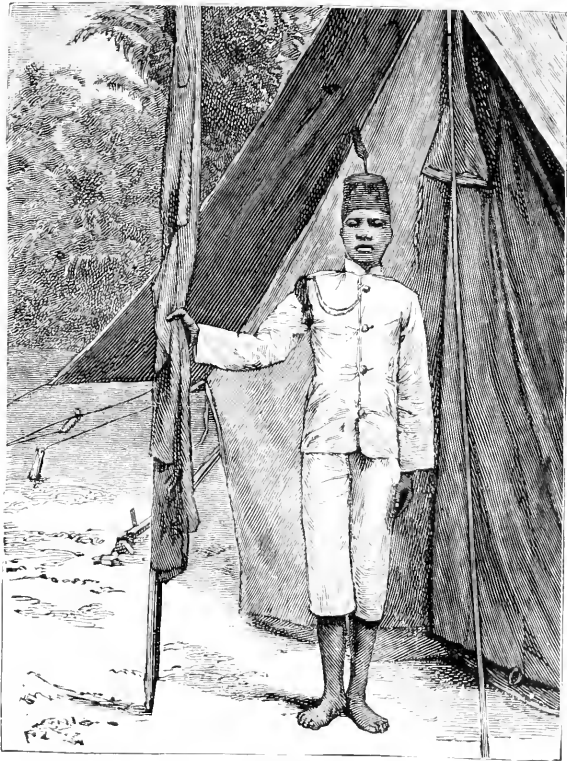
Lake Nyassa: The "Charles Jansen" Missionary Steamer at anchor off Lukoma. [U.]



Mission House and School, Umba. [U.]

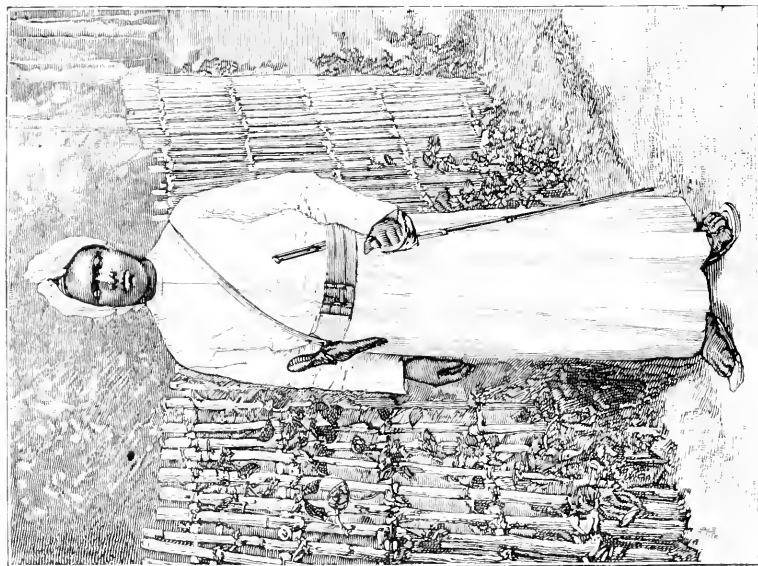


Magila: View of Quadrangle, with Church. [U.]

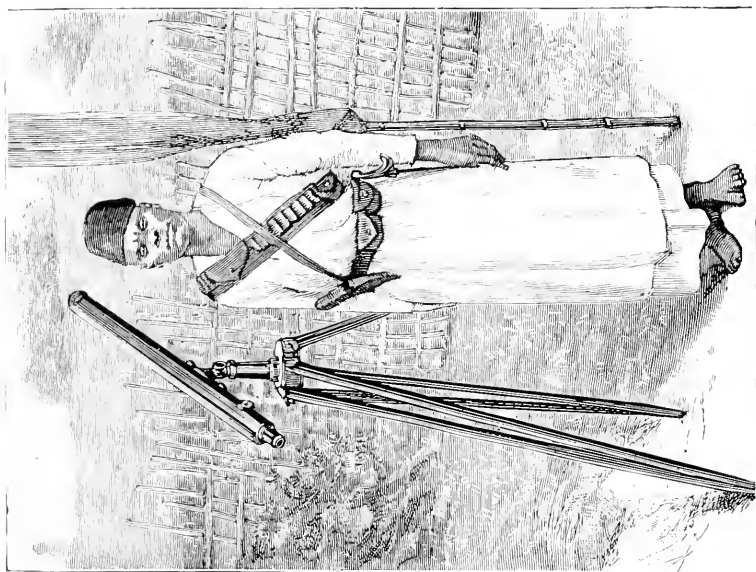


Consular Staff: a Standard Bearer. [G.]

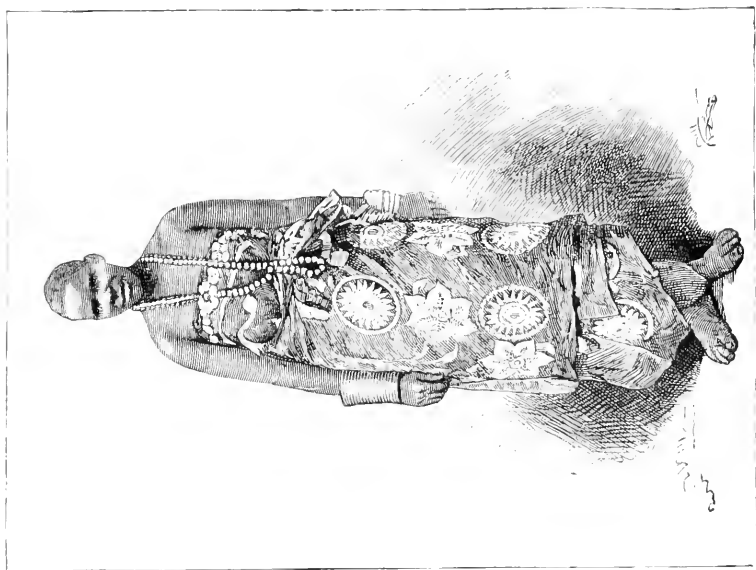
The Journal of the Manchester Geographical Society.
(JULY TO DECEMBER, 1888.)



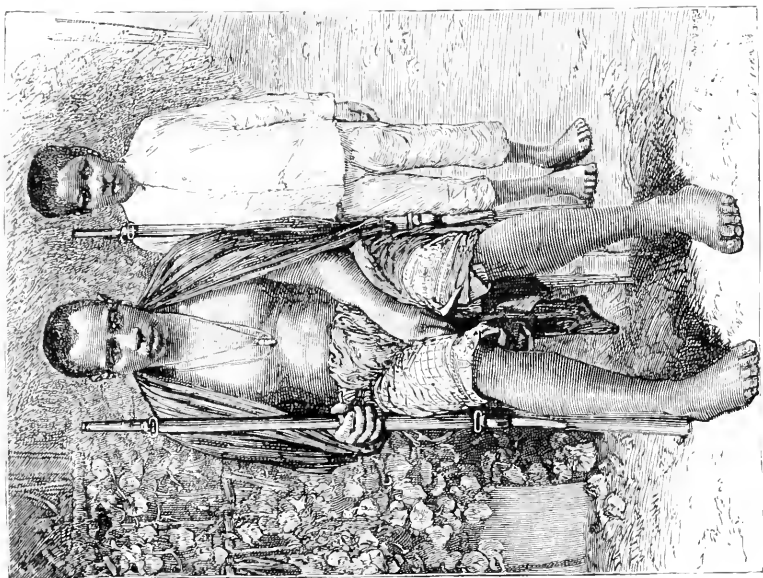
Consular Staff: An Orderly. [G.]



Consular Staff: The "Kilangosi," or Leader of the Caravan. [G.]



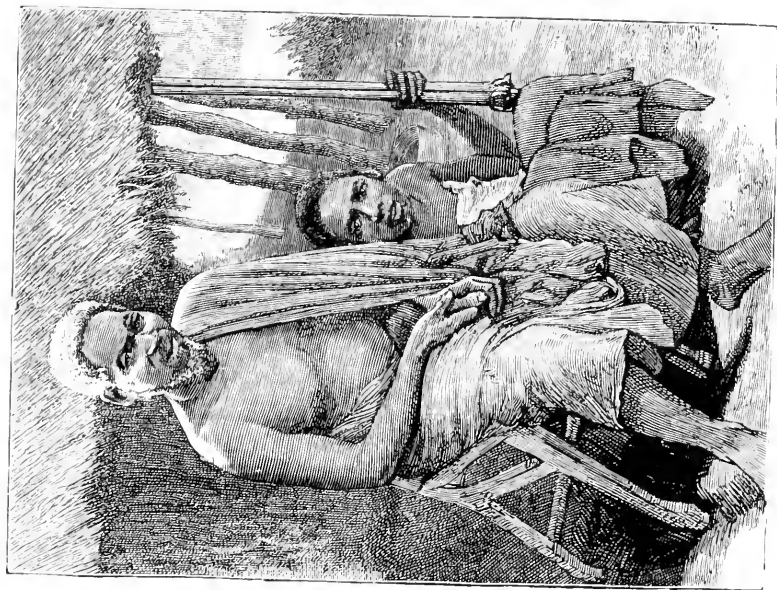
A Manganja Woman. [G.]



Makololo Tribe: Chief Katunga. [G.]



Yao Tribe: Chief Malunga. [G.]



Yao Tribe: Chief Milla and his Son. [G.]



Yao Tribe: Chief Mpama. [G.]



Angoni Tribe: Chief Kafisi. [G.]

of keeping out both Portuguese and Arabs, and needing nothing but a little friendly guidance in order to maintain their independence, and to form, as they will form, a powerful check upon the operation of the slavetraders.

All these tribes are anxious for the English to settle amongst them. They are largely under our influence, and the task of bringing them into a friendly union is likely to be much helped and quickened by Arab pressure on their borders. English missionaries have already often prevented intertribal wars. When we see Mr. David Scott, of Blantyre (he is no relation of mine—I wish he were, for he is a splendid fellow), and Dr. Lawes, of Bandawe, and others, walking unarmed in an armed camp, fully equipped for war, and persuade great chiefs at the head of their armies to make peace and cease fighting, I think it shows a moral power over the native races which Englishmen ought to use for wise and good ends.

The solution of the whole problem of government in this region is, in my judgment, to be found here: Gain the goodwill of the strong independent tribes; attach them firmly to the English side; influence them in such a way that they will neither make war upon their weaker neighbours nor allow Arabs to pass through their country; let the chiefs govern their own territory, but yourselves become the advisers of the chiefs, their most trusted friends.

War, as you know, is still going on upon the northern shores of Nyassa. The Arabs still hold the road between that lake and Lake Tanganyika. They still menace the English missionaries and trading stations of that wonderful region, the great natural waterway to the heart of Africa, and upon the issue of this contest the whole future of the country hangs.

Is English influence, with its foresight, its sympathy with the best elements of native character, its capacity for orderly progressive government, to be the guiding and ruling force there, or are we to forget our trust and leave these young peoples, before they are able to stand alone, to be devastated and broken by the Arab slave-hunters?

I have spoken of the Portuguese, natives, and English. The Germans, the remaining factor in this country, do not at present assert any claims which need conflict with our interests. The limits of their nominal "sphere of influence" cease at the eastern shores of Lake Nyassa, and recent events do not point to any very speedy extension of it. But should we hereafter come into closer contact with them, we may hope, looking to the anti-slavery movement in Germany, that there will be no difficulty in working with them for common ends.

The larger influence in the future civilisation of this fine district will, I believe and hope, fall to the share of that nation whose people have oftenest shown wisdom and sympathy in their dealings with native races.

NOTE ON THE LAKE NYASSA REGION.

No one can read the various accounts which have come from the lower Nyassa region, and which have been given by Mr. J. T. Last and the Rev. A. Hetherwick in the Proceedings of the Geographical Society, and by Mr. Moir in a recent number of *Longmans*, without feeling transported back into the past century, when little further was known of the Dark Continent save that the people were cannibals, and had a pleasant way of quaffing confusion to their enemies from the skulls of the vanquished. There now come stories of the Yaos feasting their friends on human flesh, and calling it roast "goat," of a certain chief wishing for Mr. Last's skull as a drinking bowl, of whole villages burned and their inhabitants slaughtered by a petty potentate for some fancied slight, of men and women being buried alive at a chief's funeral, of the ordeal of a poisoned cup for witchcraft, and of the most fiendish cruelties perpetrated by the slave hunters, even to driving their victims into a crocodile-infested marsh, and then setting fire to the sun-dried reeds. Such are a few of the incidents casually reported during the past few months from the region we are illustrating, where, as we recorded last week, a British trading company and a number of missionary societies are striving to implant the germs of civilisation. There is even a British Consul, Mr. Albert Hawes, to whom, through Mr. Milford Hallett, we are indebted for the photographs from which our engravings are taken. Mr. Hawes' Consulate is at Zomba, which lies south of Lake Nyassa, and to the westward of Lake Kilwa or Shirwa. The natives round about are mainly of the Yao tribe, amongst whom the practice of cannibalism and the custom of burning alive above referred to still exist. Although the natives have much intercourse with the coast Mahomedans, the influence of the latter has had little effect in changing their barbarous religious practices, or in inducing them to embrace Mahomedanism. During Mr. Last's visit to that region he made an interesting trip with Consul Hawes to Angoni Land. Angoni Land lies to the north-west of Yao, mainly on the right bank of the Shiré River, and extends to the southern shore of Lake Nyassa. Unlike the Yaos, who are ruled by a number of chiefs, the Angonis have one supreme sovereign, King Chikusi, who is greatly revered, as he is in the habit of cutting off the heads of such subjects as show the slightest disobedience. As may be seen, the costume differs very little from that of other African tribes, while their arms are chiefly clubs and spears, and large oval-shaped shields. The king has a few guns, but these are only used for elephant-hunting or for firing salutes of honour.—*Graphic*.

THE UNIVERSITIES MISSION TO CENTRAL AFRICA

WAS proposed by Livingstone in 1859, and the Rev. C. F. Mackenzie became the first bishop, January 1st, 1861. Its work has to do with the Slave Trade, Mohammedanism, and Heathenism. During the past five years the cost of the work has exceeded the income, as shown below, and the deficiency has been met by the sale of investments. These details are interesting facts in missionary and philanthropic work.

Its work is scattered over some 25,000 square miles, and in the nurseries, schools, homes and workshops, some 420 children are entirely supported by the Mission; and in addition some 300 Africans are under the immediate care of the Mission and partly supported by it.

COMPARATIVE STATEMENT.

Year ending Dec. 31.	No. of European Missionaries.	Subscriptions, Donations, &c.	Entire Expenditure at Home and Abroad.	Average Cost per European Worker.	Cost per cent. of raising funds.
		£	£	£	
1883	48	13,294	11,325	236	7 $\frac{3}{4}$
1884	57	14,037	18,152*	319	8
1885	60	15,554	15,181	253	7 $\frac{1}{2}$
1886	65	13,124	14,608	225	9
1887	63	15,505	17,916†	284	8

* Includes £4,000 for Lake Nyassa steamship.

† Includes £3,000 for fire losses, and some new permanent buildings

The Mission is established in five principal centres : In Zanzibar Island, on Lake Nyassa (Island of Lukoma), in Usambara (Magila, central station with Mkuzi, Misozwe and Umba), and in Rovuma district (Masasi, Newala, and Chitangali).

On Lake Nyassa, which is a large slave-yielding region, the Mission maintains a Church steamer. The Mission now consists of a Bishop, 25 English and 2 African Clergy, 25 Laymen, 19 Ladies, and 32 Native Readers and Teachers—104 in all. The funds are sent out to and managed by the Bishop.

OTHER AGENCIES AT WORK IN EAST CENTRAL AFRICA are the Established Church of Scotland and the Free Church of Scotland, both these bodies having Mission stations on the Shiré river, and at several stations on the West and North of Lake Nyassa. The London Missionary Society has stations on the Stevenson Road, near Lake Tanganyika, and Roman Catholic Missions have been introduced into the region. The African Lakes Company are a trading and navigating company on the rivers and on Lake Nyassa, and Messrs. Buchanan have flourishing plantations at Blantyre, whilst a trading company is exploring the Zambesi up the river to Zimboe.

Little Russia. By E. DELMAR MORGAN, F.R.G.S.—The region known as "Little Russia" has no definite landmarks ; some place its centre at Kharkof others at Poltava, but at these cities I was referred to Kief, and at Kief to Luof, or Lemberg, in Austrian Galicia, if I wish to acquaint myself with the so-called Little Russian movement. Anyone wishing to study the country thoroughly should visit all these places, make some stay in the country, and read the voluminous literature on the subject. My claim to be considered an authority rests only on a few weeks passed this summer in Kharkof, Poltava and Kief, and short excursions in each of those provinces. Kharkof is a rising city, a Russian Chicago, with a university, founded about eighty years ago, and a select literary circle. The prevailing feeling at Kharkof is that Moscow must be considered as the mother of Slav nationalities, however much like a stepmother she may behave. This is attributable to the large admixture of Great Russians in the population and the material prosperity everywhere apparent. At Kharkof, Little Russians gradually lose their distinctive characteristics and language. At Kharkof there is a summer theatre, at which national plays are acted in the Little Russian language, every attention being paid to the exact reproduction of the dress, customs, &c., of this people. From Kharkof I made an expedition to the monastery of "Sviatiye Gori," the "Holy Hills," on the right bank of the Donetz. I reached it on the anniversary of its first abbot, Arsenius, and found a great number of pilgrims assembled there from various parts of Russia. This monastery ranks next to the Pecherski Lavri of Kief in importance in southern Russia. The general appearance of the country is that of a cultivated boundless plain, with occasional mounds or kurgans rising above the surface to the height of fifty or sixty feet. These are the burial places of the earlier nomadic inhabitants, according to recent investigations. Poltava, my next halting place, is situated on heights overlooking the Vorsklo. Notwithstanding its dreary and somewhat dilapidated appearance, it is the heart of Little Russia, and its associations carry one back to the most stirring events in the history of that nationality. I made an excursion from Poltava to Count Kochubey's estate and thence to Oposhnia, where the home industries, especially pottery, leather-dressing, &c., are important. On the way to Sorotchnitsi, in the valley of the Psiol, I visited a Stundist, one of a sect which is likely to cause no little trouble to the Government, the measures hitherto taken against them having defeated their object. The Little Russians are a finer race than the Great Russians ; they are enterprising colonists, and the charge of laziness made against them is unfounded. Their social and political tendencies are different to those of the Great Russians. Whereas these favour communal tenure and the patriarchal family life, Little Russians are all for individualising property and severing the family tie. In earlier times their *gromada*, answering to the *Mir* of Great Russia, freely discussed local affairs. The present aristocracy of landowners is descended from the Hetmans and other officers of Cossacks who were in power at the time of the rebellion against Poland in the seventeenth century and their union with Russia or Muscovy as it was then called.—*British Association*, 1888.

THE REPUBLIC OF PARAGUAY.—(*See Map.*)

(Notes from the Official "Résumé Statistique" and other sources of information,
furnished by Mr. JAMES PARLANE, J.P.)

[Read to the Members in the Library, December 12th, 1888.]

THIS South American republic has hitherto attracted little attention from the people of this country. It is an inland country, being about the centre of South America, and is bounded on the north by Brazil and Bolivia, on the east by Brazil and the Argentine Republic, which (A.R.) also bounds the country on the west. Three great rivers run through or alongside its borders, the Parana, the Paraguay, and the Pilcomayo. The capital and seat of government is at Asuncion, at the junction of the rivers Pilcomayo and Paraguay. It is situate between $22^{\circ} 4' - 27^{\circ} 30'$ S. lat., and $54^{\circ} 32' - 61^{\circ} 20'$ W. longitude.

According to the official report published in 1888 the population at the last census was 329,688, exclusive of the Indian and semi-Indian population, which is estimated to number respectively 70,000 and 60,000 in addition. The estimate of the pure Indian population is probably exaggerated.

The nationalities in the republic, as given for a smaller population three years ago, are represented below, and the same proportion, more or less, exists in the present increased population of 25 per cent :—

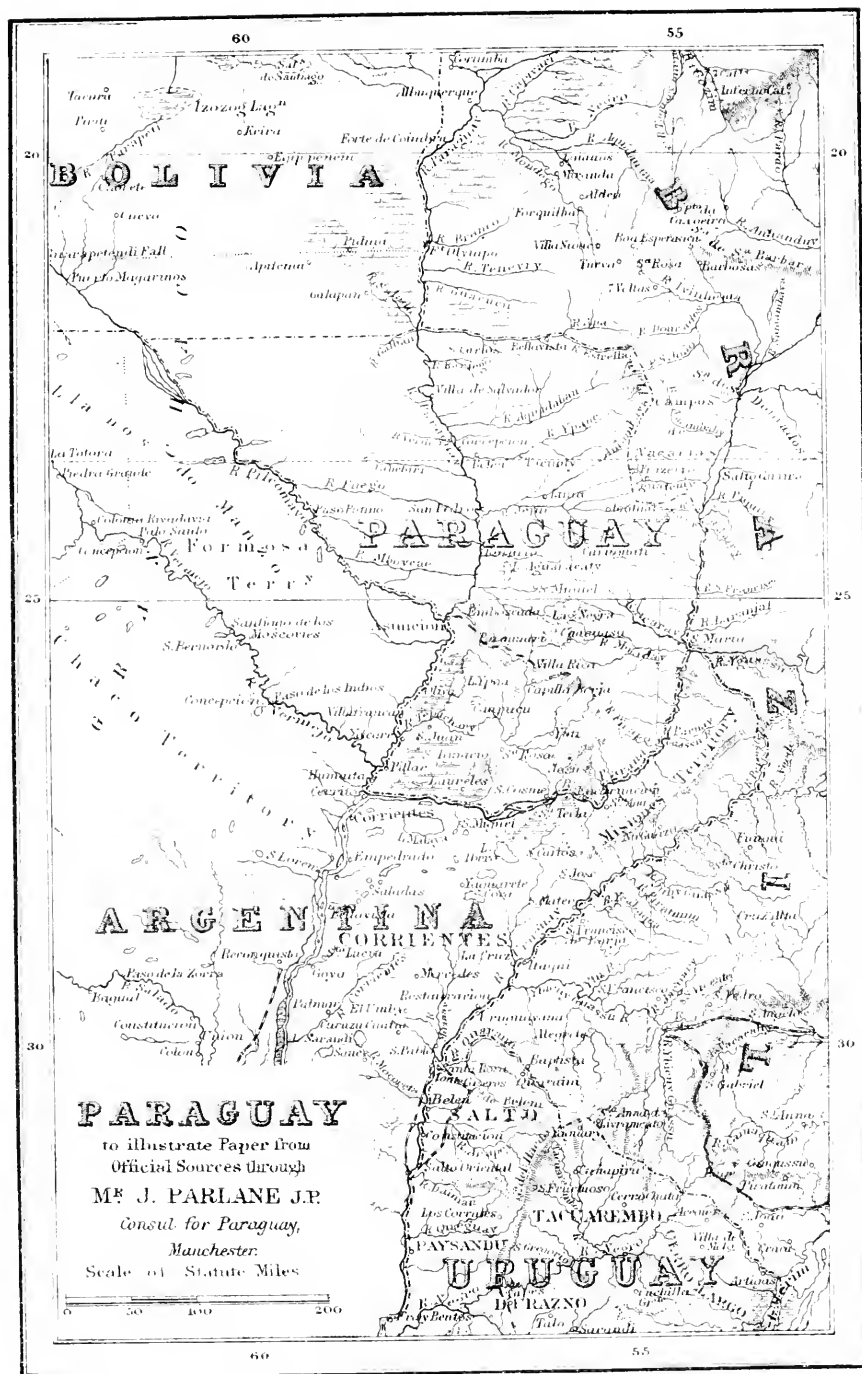
Paraguayans.....	231,878	English	53
Argentines	4,895	Italians	825
Brazilians	530	Portuguese.....	116
Bolivians	16	Swiss	112
Chilians	18	Greeks	30
Uruguayians	198	Russians	3
North Americans	13	Belgians	14
French	228	Dutch	1
Spanish	321	Peruvians	5
Germans.....	476	Grenadians.....	1
Austrians	53	Danish	2

The present foreign population of Paraguay probably exceeds 9,000, of whom 1,500 are Italians, 5,000 Argentines, 600 Brazilians, 300 French, and 100 English. The German population has increased considerably, and may now number 750 persons.

The capital city, Asuncion, has a population of about 28,000. The other towns are Villa Rica, with 12,000 inhabitants at least; Villa Concepcion, 11,000; Caazapa, 9,000; Luque, 8,000; San Estanislao, 7,500; Itauguá, 6,000; Itá, 5,500; Paraguari, 6,000; Humaitá, 5,000 to 6,000; Villa Pilar, 14,400; Yaguaron, 6,000; Areguá, 5,000.

Asuncion has a number of important public buildings, and it is rapidly effacing all marks of the awful war of 1865-68, and taking its proper position as the capital of a great state. Villa Rica is the next important city, and its chief product is tobacco, for which the district around it is particularly adapted. The estimated population of all these towns, as given in the official journal of the 24th January, 1889, exceeds the figures given above. The last official report gives the extent of the Republic as being 238,290 square kilometres.

The boundaries of Paraguay and Bolivia are not well defined, and the exploration of the Chaco, which divides the two on the north-west, will tax the utmost efforts of future well-equipped expeditions for years to come. The Paraguay Chaco is only a portion of the territory bearing this name. Two-thirds of it, or 120,000 square miles, belong to the Argentine Confederation. The rivers of this district are of enormous



extent, and are still very little known, though doubtless destined to play a great part in the future of South America. In many respects they have characteristics as wonderful as the Nile and the rivers of Asia. The late Captain Page, of the American navy, some thirty years ago contributed greatly to the knowledge of these rivers, and his son, who is a captain in the Argentine navy, has added to this knowledge, and at the meeting of the Royal Geographical Society on the 28th January, of this year, he read a very interesting paper "On the Gran Chaco and its Rivers," both of which he is about to further explore.

The country is divided into twenty-three electoral departments—three for the capital and twenty for the provinces. The Chaco, a state colony, is not included in the number. The government is a representative republic. The government is exercised by three powers—legislative, executive, and judicial. The chamber of deputies, and that of the senate, united in Congress, constitutes the legislative power of the Republic. The deputies are elected upon the basis of one representative to every 6,000 inhabitants or fraction of that number if it exceeds 3,000. The senators are elected on a basis of one senator for every 12,000 inhabitants or fraction exceeding 8,000 in number. The executive power or authority rests with the president of the republic, who is elected to office for a term of four years, and who cannot be reappointed to that office unless there has been an interval of at least four years. In the event of a vacancy in the presidential chair, the vice-president exercises the powers of the president as a matter of right.

His Excellency General Escobar was elected president November 25th, 1886. There are five principal secretaries of state. At the present moment these officials are : Secretary for the Interior, Senor Meza ; Secretary for Foreign Affairs, Colonel J. C. Centurion ; Secretary for Finance, Senor Uriarte ; Secretary for Justice and Public Education, Senor Maciel ; Secretary for War and Navy, Senor Duart. The judicial power is invested in the Supreme Court of Justice.

THE CLIMATE.—The frequency of temperate winds singularly affects the heat of the climate. The table of observations for the year 1886 in the city of Asuncion furnishes the elements of comparison upon the mildness and evenness of the Paraguayan climate:—

METEOROLOGICAL OBSERVATIONS, 1886.

Month.	Thermometer.			Hygrometer.			Pluviometer.	Days.		
	Max.	Min.	Mean.	Max.	Min.	Mean.		Rain.	Cloudy.	Clear.
January ...	90	71	32.22	60	95	82.3	150	11	4	16
February...	87.5	—	30.56	58	97	80.9	161	8	2	18
March	82.5	—	27.78	63	96	81.8	214	7	3	21
April	78.5	—	25.56	70	98	84.1	209	9	2	19
May	72.5	56	22.22	70	99	86.5	175	6	10	15
June	71.5	58	21.67	68	96	85	94	5	10	15
July.....	66.4	—	13.89	63	95	82.7	99	7	9	15
August ...	68.5	—	16.48	65	94	77.9	39	3	5	13
September	75	—	20.17	63	94	81	81	9	6	15
October ...	82.5	69	27.78	70	98	85.8	200	8	6	17
November	90	73	31.11	65	95	81.7	128	9	8	13
December	98	72	32.62	60	92	78.6	78	9	2	20

In 1886 there were 64 days of cold, 92 days of great heat, and 227 temperate. The average of the thermometer for 1887 was 73°.

AGRICULTURE.—The admirable fertility of the soil, with the spontaneous richness of the natural productions, tobacco, sugar cane, rice, maize, manioc, haricot beans

onions and garlic, oats, potatoes and sweet potatoes, coffee, earthnuts, wheat, cocoa, indigo, oranges, and cotton. La jerba maté, known in Europe as Jesuit tea, is produced in the plateaux, and is found wild in the forests. 900,000 arrobas were produced in 1886. In 1886 50,000,000 oranges were exported from Paraguay, 12,000,000 pounds weight of tobacco, and 25,000,000 cigars. The smaller items of export were woods of various kinds, barks for tanning, starch, preserved fruits, hides, hair, ostrich feathers, skins of wild animals, &c.

INDUSTRIES.—The industries of the republic are tanneries, earthenware manufactures, brick and tile works, soap works, the very beautiful gold filigree work, and other small articles of bijouterie, lace work, ponchos (the curious cloaks worn in South America, which are high in price, and are quite local work), the manufacture of alimentary products, and a considerable manipulation of various beautiful woods and dyestuffs. Among its principal trees are several species of dyewood, and many yielding juices or gums, such as the caoutchouc or indiarubber, and the valuable shrub called maté, or Paraguay tea plant, which constitutes a principal article of commerce.

COLONIES.—The republic has two colonies. One, San Bernardino, is on the borders of the lake Ipacarai. It is a small territory of twenty-five leagues of excellent land, and is occupied by 334 people. The other is the Hayes City colony on the Chaco, which is five leagues from the capital, and has twenty-five families. In 1886 nine Swiss and three French persons were sent to augment this colony. These two colonies have been so successful that their numbers may be said to be full, and the government is already considering as to the advisability of starting a large colony in the vicinity of the capital, and several others are in contemplation.

CUSTOMS.—Foreign merchandise generally pays an import duty of 25 per cent *ad valorem*. Firearms, powder, war material, alcohol, fine wines, liquors, perfumery, tobaccos, cigars, and matches pay 50 per cent. Ready-made clothes, boots, saddlery, harness, and coaches, 40 per cent. Silk goods, Spanish, Italian, and French table-wines (come in great quantity), 30 per cent. Ornaments of gold or silver, goldsmiths' work, and unmounted precious stones, 10 per cent. Hides, each, 50 cents. The following articles pay no import duty: Machines, live stock, fresh fish, fresh fruits, Portland cement, Roman cement, immigrants' furniture and agricultural implements, gold and silver money, empty bottles, printed books, globes, maps, scientific instruments, printing machines and types, charcoal, iron, resin, kelp, oil, animal black.

POST OFFICE.—The budget for 1886 was as follows: Stamps and telegrams, &c., sold, 26,403.18 dollars. Remitted to the public treasury, 16,603.18 dollars. Credit of balance, 9,800.00 dollars. The republic is in the Postal Union. There are some short telegraphic and telephonic lines.

NAVIGATION.—The following is the movement of shipping at the port of Asuncion in 1886:—

	Entered.	Left.
Steamships	74 ...	96
Sailing ships	269 ...	180
Tonnage.....	12,121 ...	8,794
Crews	2,097 ...	2,115
Passengers	1,410 ...	1,558
Ships with Cargo	315 ...	166
Ships with Ballast	23 ...	110

The foreign trade of Paraguay amounted in 1887 to upwards of 5,000,000 dollars (about four shillings each), of which about 3,000,000 dollars were imports and 2,156,000 were exports.

EDUCATION.—In addition to the National College, which has 169 pupils, there are in Asuncion nine schools for boys and girls, with 1,940 scholars. The National College has 21 professors, and the subjects of study are, history, geography, literature, mathematics, physics, chemistry, topography, cosmography, English and French languages, and zoology and botany. No general public scheme of education appears to be in existence. The public library has 2,538 volumes, and in 1886 2,626 persons used the books. A hospital has been founded, which in 1886 treated 41 persons, and in the Mendicancy Hospital, in the same period, 50 persons sought relief.

THE ARMY.—On a peace footing the army consists of 603 men and 39 officers of all arms. In time of war all men (about 60,000) between 20 and 35 years of age capable of bearing arms are called out to serve with the colours.

NAVY.—Three small river steamers comprise the navy of the state.

In the year 1887 the revenue was £396,635. The public (consolidated) debt (about) £925,000.

According to Official Report lately to hand there were at the end of 1888, in the republic, 1,305 business establishments of one kind or another, with a declared capital of eight and a quarter million dollars, as compared with an Official Return of 841 business establishments, with a capital of two and three quarter million dollars, in the previous year. This augmentation was largely owing to the great progress of the country in every department, but it was also owing to more exact returns having been obtained and compiled under the direction of the Registrar-General.

Everything in Paraguay is at present in a transition state, and there are indications on every side that the country is on the eve of a great development, both as regards population and resources of every kind. The country is rich beyond belief, and for the capitalist is a most desirable field for profitable returns. For the English labourer the climate is doubtless too near the tropics, but it is admirably fitted for Italians, Spaniards, and others accustomed to such climates as they are, and who, like them, have knowledge of vine culture, and sub-tropical agriculture.

After the three years' war, which terminated in 1868 or early in 1869, the old Paraguay had been literally annihilated, a population of one million and a quarter having been reduced to one quarter of a million. Never in the history of the world had a whole nation so bravely fought against overwhelming odds, and in a quarrel which could bring them so little advantage. The history of this war has been well told by Thompson, Washburne and Masterman, and the story of the last reads like a romance. The story of the defence made by Thompson may in its way be compared with the defence of Sebastopol, a few years previously—cannon, the bayonet, famine, cholera, fever, smallpox, and disease of every kind, almost blotted the nation out for a time, but it is now under happier auspices, raising its head and preparing to take its proper place among the republics of South America.

*“ON PARAGUAY.

“All those who have ever visited Paraguay come back with tales which create a strong desire on the part of their listeners to go and do likewise. It is the garden of South America, and a very El Dorado for over-worked men; for since the war with Brazil, which almost exterminated the male population, the rule has been reversed in Paraguay, and instead of men working while women are weeping, the bulk of the work is done by women, and man, poor man, looks on and smiles. It is perhaps a just retribution that as the beautiful Madame Lynch, better known as Madame Lopez, was the cause of the terrible war which was kept up by Paraguay for

* From the *Financial News* of October 2, 1888.

five years against the combined forces of Brazil, the Argentines, and Uruguay, her sex have been obliged for the last eighteen years to labour to keep themselves alive and their little republic from extinction. Not many years ago the proportion of women to men was in the ratio of 20 to 1. Gradually the women's majority is becoming less marked, and in the neighbourhood of the capital, Asuncion, the chief point of attraction for immigrants, the proportion is now said not to be more than two to one in favour of the fair sex. But the effects of the mad struggle in which President Lopez engaged to gratify the ambition of his mistress, by proclaiming himself emperor of South America, are shown only too clearly by the census returns. In 1857 the population numbered 1,337,439; at the beginning of 1873 an official return gave the number of inhabitants as only 221,079; and the last census, taken in March, 1887, gave only 329,638 as the total."

There are now signs that prosperity is reviving in Paraguay. The country has almost everything in its favour—namely, position, climate, and natural resources. The Paraguay River, which runs through it, is navigable for big steamers right up to the capital; the climate is mild and extraordinarily healthy, and the soil surprises European emigrants by its fertility. Well wooded, and watered by numerous rivers, it only requires the introduction of capital and intelligent labour to render it almost as prosperous as its Argentine neighbour. That the population has not hitherto increased more rapidly is due partly to the fact that European emigrants have found what they required in Brazil and the Argentines, and have not found it necessary to go inland to Paraguay. Then, although in Paraguay women are so superabundant, in the Argentine Republic the opposite is the case, and great numbers of the Paraguayan ladies have left their country to console the Argentine bachelors. Thus, while the tide of emigration is slowly turning towards Paraguay, and Italians in especial are making their way there, the efflux of the surplus women to other countries, while preventing a rapid rise in the population, is gradually diminishing the enormous disproportion between the sexes. That there is a great future for Paraguay is probable, and, as usual, the Germans are the quickest to perceive it. An apathy seems to have fallen on British traders, and if they do not rouse themselves from it they will presently see the commerce of South America pass altogether into German hands.

In 1885, when the Minister of Foreign Affairs came to this country in connection with the debt conversion scheme, an English firm tendered for the contract for supplying postage stamps. The Minister asked for samples before giving the contract, but so dilatory was the firm that, although he stayed six months in England, he had left the country before that firm had their samples ready. Consequently, they had to be sent after the Minister to Paraguay. In the meantime a German firm had heard of the business, and in the same ship which took the Minister back to South America sailed a representative of the German firm with excellent samples. Needless to add that he obtained the contract, which the English firm lost through their delay. At the present time a railway is being built in Paraguay, of which the materials are supplied entirely from Germany. The energy which used to distinguish our merchants seems to have departed. They seem unable to adapt themselves to the new methods of trade necessary to success to-day, and, as a consequence, year by year the Germans increase their footing in countries which used to be almost entirely supplied by English manufacturers. In the River Plate this is especially noticeable; and while there are branches of German houses rapidly springing up out there, which will supply anything from a needle to an anchor, the English houses are being left behind in the commercial race. With a turning tide in Paraguay, English manufacturers will do well to take what we have said to heart.

COMMERCIAL GEOGRAPHY.

Address to the Geographical Section of the British Association, by COLONEL C. W. WILSON, R.E., K.C.B., K.C.M.G., D.C.L., LL.D., F.R.S., F.R.G.S., Director-General of the Ordnance Survey, President of the Section.

[Read to the Members of the Society, in the Library, December 12th, 1888.]

ON opening the present session of the geographical section of the British Association, I cannot refrain from alluding to the last occasion, now nearly a quarter of a century ago, upon which it met in this city. The chair was then filled by one to whom I, in common with others of the younger generation of that day, must ever owe a deep debt of gratitude for many kindly words of advice and encouragement. Then, as now, popular interest centred in Africa; and Sir Roderick Murchison, on taking the chair, was accompanied by a group of distinguished African explorers. Some amongst us may remember the enthusiastic greeting accorded to Livingstone, and the heart-felt sorrow caused by the announcement that the gallant, chivalrous officer, whose name will ever live in history as the discoverer of the sources of the Nile, had been cut off in the fulness of his strength and vigour.

The African travellers who have honoured us with their presence to-day have shown the same pluck, the same perseverance, the same disregard of personal risk and comfort as their predecessors. One African traveller, a distinguished officer of the German army, who hoped to have been with us, has this year been awarded the highest honour which the Royal Geographical Society can confer—its gold medal. Lieut. Wissmann—who possesses all Livingstone's indomitable courage, his constancy of purpose, and his kindly feeling towards the natives—has twice crossed Africa, in its widest extent, without firing a shot in anger. He returned recently to Europe, filled, like the great English traveller, with indignation at the atrocities perpetrated by the Arabs on the blacks; and eager to find means, if such there be, of putting an end to, or at least mitigating, the unspeakable horrors of the slave trade. He is now organising an expedition, which has the double object of opening up the territory in Eastern Africa that falls within the sphere of German influence, and of bearing relief to Emin Pasha. In both enterprises we may heartily wish him God-speed!

The light thrown upon the interior of the Dark Continent is the most striking feature of geographical exploration during the last twenty-five years, and it is really the work of the last eleven years; for it was only in 1877 that Mr. Stanley, by his remarkable journey, gave a new continent to the world. If Sir Roderick Murchison were now alive, he would feel more than gratified at results which have been so largely due to his initiative. I propose, presently, to return to the interesting subject of Africa; but I would first draw attention to the influence which the natural features of the earth's surface have had, and are still having, in conjunction with other causes, on the trade routes and commercial relations between the West and the East, and more especially with India.

The great civilisations of high antiquity appear to have risen and expanded in four riverain districts: Chinese in the basins of the Hoang Ho and the Yang-tse-Kiang; Hindu in those of the Indus and the Ganges; Chaldean and Assyro-Babylonian in those of the Tigris and the Euphrates; and Egyptian in that of the Nile. India is separated from China, on the one hand, by rugged, lofty mountain ranges, and the high-lying plateau of Thibet, and from Mesopotamia, on the other, by the Suleiman Mountains and the Perso-Afghan plateau. Intercommunication between these early

seats of man's activity must, therefore, have been of slow growth. From Mesopotamia, on the contrary, there is easy access to the Nile basin by way of Syria and Palestine, and there are indications of traffic between these districts at a very remote period. Inquiry into the causes which first led to intercommunication and into the means by which it was effected is needless. Desire of gain, lust of power, were as much a part of human nature in the earliest ages as they are now. The former induced the pioneers of commerce to feel their way across trackless deserts, and to brave the hidden dangers of the sea; and for nearly three hundred years it led gallant men to seek a way to the wealth of India through the ice-laden seas of the Arctic region. The latter brought the great empires of Assyria and Egypt into hostile conflict, and carried Alexander to the banks of the Oxus and the Indus; and it is largely answerable for the land-hunger of European states in our own generation.

Nations rise, fall, and disappear, but commerce extends in ever-widening circles, and knows no limits. Efforts are constantly being made to discover and open up new fields of commercial activity and to connect the great centres of commerce by quicker and shorter trade routes. The earliest traffic was conducted by land; men travelled together in caravans for mutual protection, and rested where food and water were to be obtained; at the most important of these halting places cities were founded. As trade extended it became necessary to carry goods through independent tribes or countries, which often insisted on retaining the transit trade in their own hands; and this led to the rise of cities at points convenient for the transfer of loads and the exchange of the commodities of one country for those of another. Generally speaking, this early over-land trade was co-extensive with the geographical limit of the camel. Next in order to land traffic came that by water, first on rivers, then on the sea; and cities naturally sprang up at places on the coast where the merchandise, brought down the rivers in boats, could, conveniently and safely, be transferred to galleys or ships suitable for coasting. After a knowledge of the monsoons had been acquired, men began to trust themselves to the open sea; the ships were improved, and a system was established under which voyages were made, with great regularity, at certain seasons of the year, so that advantage might be taken of the periodic winds. Increased knowledge of the globe, improvements in the art of shipbuilding, and the invention of the steam engine, have gradually led to the ocean traffic of the present day, conducted by large steamers, which, regardless of wind and tide, follow the most direct course from one point to another. The trade routes of the world are subject to two great modifying influences—one physical, the other political. The inland trade of India, for instance, can only reach Central Asia and the West by way of Herat or Bamian; caravan roads across the deserts of Asia and Africa must follow lines of springs or wells; climatic conditions render all polar routes impracticable; and the removal of a physical obstacle, by the construction of the Suez Canal, is now causing a remarkable redistribution of the channels of commerce. So, too, disturbance of traffic by war, or its designed destruction by conquerors; and great political changes, such as the establishment of the Persia Empire, the rise of Rome, the disruption of the Roman Empire, and the advent of the Arabs to power in Western Asia, divert trade from its accustomed routes and force it into new channels, to the ruin of some cities and states and the enrichment of others. The general tendency of trade so diverted is to seek, where possible, a maritime route; for water transport is not only less costly, but less liable to interruption than land transport.

India, partly from its geographical position, partly from the character of its people, has always played a passive role in commerce, and allowed the initiative in commercial enterprise to rest with the West. The greatest advantages have always been derived from the possession of the trade between the East and the West, and, from a

remote period, the nations of the world have contended for this rich prize. One state after another has obtained and lost the prize. *England now holds it; but if she is to keep what she has obtained, there must be a far closer study than there hitherto has been of geography and terrestrial phenomena in their relation to commerce.* Trade between the East and the West may be divided into three periods: the *first*, during which the limits of Oriental commerce were the eastern and south-eastern shores of the Mediterranean, closed with the foundation of Carthage, about 800 B.C.; the *second*, or Mediterranean period, ended in the fifteenth century; the *third*, or Oceanic period, has lasted to the present day. In the first period there were two principal lines of traffic; the southern sea route following the coast line, and the northern land route traversing Asia in its whole extent from east to west. There are indications of communication between China and the West so early as 2698 B.C.; and in 2353 B.C. an embassy arrived in China from a country which is supposed to have been Chaldaea. There is also an early notice of caravan traffic in the company of Ishmaelites—bearing spicery, and balm, and myrrh to Egypt—to whom Joseph was sold (Gen. xxxvii. 25-28). The earliest maritime people to appreciate the value of trade between the East and West were, apparently, those living along the south coast of Arabia. Happily situated between the Persian Gulf and the Red Sea, and separated by vast deserts from the great nations of Asia, the Sabæans were free from those alternations of industry and war which are so unfavourable to commercial pursuits. For centuries they possessed the commerce of India, and they became famous for their opulence and luxury. Sabæan ships visited Ceylon and the Malabar coast, and the Sabæan merchants supplied Indian goods to Mesopotamia and Syria, as well as to Egypt and Ethiopia. The ships trading to the Persian Gulf discharged their cargoes near the mouth of the Euphrates; whence the traffic passed partly by river, partly by land, to the coast towns of Syria and Palestine, and through the Syrian and Cilician gates to Mazaca (Kaisariyeh) and Pterium (Bayhazkeni). From the last place Indian goods found their way to Sardis and Sinope. The ships visiting the Red Sea landed goods at Elath, at the head of the gulf of Akabah, for carriage by land to Tyre and Sidon, and on the western shores of the Red Sea for transmission to Meröe, Thebes, and Memphis. At the same time silks from China and gems from India were carried overland to Chaldaea and Assyria; and Bactra (Balkh), "the mother of cities," rose and flourished at the central point of the transit trade. Egypt, with no timber for shipbuilding, a distrust of all foreigners, especially when they came by sea, and a settled dislike of maritime pursuits amongst her people, long neglected the opportunities afforded by her favourable geographical position. Tyre, Sidon, and other Phœnician towns reached by easy roads from the Euphrates and the Red Sea, and from their situation commanding the Mediterranean, became centres of distribution for Indian goods; and the Phœnicians, gradually extending their operations to the Red Sea, traded with the ports of southern Arabia, and even ventured to the shores of India. It was in this first period that the Jewish kingdom reached its widest extent. During the long wars of David's reign the Jews obtained possession of the land routes over which the rich products of India were carried to Tyre and Sidon; and Solomon did all in his power, by building Tadmor in the Wilderness (Palmyra), by improving the port of Elath, and by carrying out other great works, to protect and facilitate the transit trade from which such large profits were derived. The Jews do not appear to have been the actual carriers; but many of them, no doubt following the example of their merchant-king, engaged in commercial pursuits, and wealth poured into the kingdom, so that silver was made to be as stones in Jerusalem.

In the early portion of the second period the commercial prosperity of the Phœnicians reached its culminating point. Their colonies dotted the shores of the

Mediterranean, and their ships passed the "Pillars of Hercules" to Great Britain and the western shores of Africa, and floated on the waters of the Red Sea, the Persian Gulf, and the Indian Ocean. The sea-borne trade of the known world was in their hands. Wealth flowed into their cities, and in the markets of Tyre tin from Cornwall and amber from the Baltic were exposed for sale with the silks, gems, and spices of the far-distant East. The decline of Phœnicia dates from the establishment of the Persian Empire in the sixth century before Christ, and after the capture of Tyre by Alexander its commerce gradually passed into the hands of the Greeks. The Persian policy of closing the Persian Gulf to commerce forced the Indian traffic along the land routes. Babylon, which had become the emporium of Eastern trade, declined, whilst Susa and Ecbatana were enriched by the transit trade which passed through them and crossed the whole extent of the empire to the Mediterranean ports. The policy of Alexander was to secure the carrying and distribution trade of the world to the Greeks, and with this object he founded Alexandria, and intended, had he lived, to restore Babylon to her former splendour. Ptolemy, his successor in Egypt, used every means in his power to draw trade to Alexandria, and the new city soon rose to opulence and splendour. The Greek merchants obtained their Indian goods from the Arab traders whom they met in the ports of southern Arabia. They landed them at Myos Hormos and Bérnice on the western shore of the Red Sea, carried them by camel across the desert, and floated them down the Nile and by canal to Alexandria, whence they were distributed to the neighbouring parts of Africa and the coasts of the Mediterranean. This trade route remained unaltered until Egypt became a Roman province. Another stream of commerce passed by way of the Persian Gulf to Seleucia on the Tigris, and thence, partly by water and partly by land, through Aleppo to Antioch and Seleucia at the mouth of the Orontes; and a third followed the ancient highway from Central Asia to the ports of the Euxine and Ægean Seas.

After the rise of Rome all trade routes were directed upon the imperial city, which became a centre of distribution for the merchandise of the East. The Greeks still monopolised the sea-borne trade, and those of Egypt, recognising the advantage of their geographical position, took the direct trade to India into their hands, and extended their voyages to Kattigara, the port of the Sinaï, in the gulf of Tongking. Alexandria became the commercial capital of the Roman Empire—the distributing centre of the world for Indian and Asiatic goods, and a place of such wealth that one of the merchants is said to have been able to maintain an army. At the same time the old ports of Tyre, Beirût, Antioch, Ephesus, Byzantium, and Trebizonde maintained their position as *termini* of the land traffic. The extent of the intercourse between the East and the West during the Roman Empire is shown by the embassy of the Seres (Chinese) to Rome in the reign of Augustus, and by the several embassies to China, which followed that sent by Marcus Aurelius in 166 A.D., until the Arab Empire interposed, as well as by the fact that in the time of Pliny the Roman imports from Asia each year were valued at one hundred million sesterces (about £800,000). Trade followed well-established routes, which remained in use, with but slight modification, till the fifteenth century. There were three principal lines of communication through Central Asia, all leading from China across the desert of Gobi. The northern ran to the north of the Thien Shan by Lake Balkash to the Jaxartes (Syr Darya); the central passed along the southern slopes of the Thien Shan and crossed the mountains by the Terek Pass to Samarcand and the Oxus (Amu Darya); and the southern passed over the Pamir and through Badakhshan to Balkh. The northern route apparently went on from the Jaxartes through Khiva to the Caspian, which it crossed, and then ran on to the Black Sea. Even at this early period trade filtered round the northern shores to the Caspian, and later, during the Middle Ages, there was a

well-established trade route in this direction through Khiva to Novgorod and the Baltic, by which the northern countries received Indian goods. From the Oxus region, reached by the central and southern lines, there were two routes to the West. One passed through Merv, crossed the Caspian, ascended the Araxes to reach Artaxates and Trebizonde, or to descend the Phasis (Rion), to Poti, and then coasted the shores of the Black Sea to Byzantium. The other also passed through Merv, and, running along the northern frontier of Persia, reached the shores of the Black Sea through Artaxates, or continued on through Mesopotamia, Syria, and Asia Minor to Byzantium. The land trade from India passed through the Bamian Pass to Balkh, and through Kandahar and Herat to Merv or Sarrakhs to join the great stream of Central Asian traffic. The greater portion of the carrying trade on these long lines was in the hands of the people dwelling between the Jaxartes and the Oxus, who had their centre at Samarcand; and these Sogdians, or Asi, as they are called in the Chinese annals, fearing lest they should lose the profit on the transit trade, threw every obstacle in the way of direct communication between China and the Roman Empire. The difficulties which thus interrupted the land traffic gave an impetus to the trade by sea, and so benefited Alexandria and the cities in the Persian Gulf. The sea trade at this time was carried by way of the Persian Gulf and the Red Sea. In the first case the cargoes were landed at some port on the Euphrates or Tigris, whence the goods were carried by river and caravan up the valleys of those rivers, and then through Syria to Beirût and Antioch, and through Asia Minor to Ephesus, Smyrna, Constantinople, and Samsûn. In the second case the merchandise was landed either near Suez, whence it was conveyed by caravan, canal, and river to Alexandria, and at a later date to Pelusium; or at the head of the Gulf of Akabah for transport to Syria and Palestine. The sea trade was to a great extent a coasting trade, and it appears to have been shared by the Greeks and the Arabs, and perhaps by the Chinese, whose junks were to be seen at Hira, on the Euphrates, in the fifth century.

On the disruption of the Roman Empire, the Byzantines, with their capital, situated on the confines of Europe and Asia, naturally became the intermediaries between the East and the West, and they retained this position until the maritime towns of Italy, France, and Spain became sufficiently strong to engage in direct trade with the Mediterranean ports to which the produce of the East found its way. Until the seventh century the Sassanians held the lines of communication by land, and they did all they could to prevent Eastern produce from being carried over any other roads than those passing through their territory or by any other hands than theirs. In the sixth century they allowed an exchange of produce between the East and the West to take place at only three points: Artaxates for goods arriving from Central Asia; Nisibis for those from Central Asia and by the Tigris route; and Callinicum (Rakka), for those coming by way of the Persian Gulf and the Euphrates. Justinian attempted to free Oriental commerce from its dependence on the Sassanians by opening up new trade routes. The Sogdian silk merchants passed, outside of Persian territory, round the north end of the Caspian to meet those of Byzantium on the shores of the Sea of Azov and the Black Sea; the products of India were obtained from Ethiopian traders at Adulis, on the Red Sea; and Greek navigators, taking advantage of the monsoons, sailed direct from the southern end of the Red Sea to the Malabar coast and Ceylon.

In the seventh and eighth centuries the Arabs overran the whole of Central Asia and the carrying trade by sea and by land passed into their hands. Profound modifications were thus introduced into the commercial intercourse between the East and the West. All land traffic from the East was directed upon Baghdad, which became the distributing centre whence goods were despatched by the ancient trade routes to

the West, and which almost rose to the splendour of Babylon. On the sea the Arabs regained their old reputation; they sailed direct from the Red Sea to Cape Comorin, and from Ceylon to the Malay peninsula, and extended their voyages to Kanpu on a delta arm of the Yang-tse-Kiang; they established factories in the Indian Ocean, and, in the eighth century, were so numerous in Canton as to be able to attack and pillage that city. Their only rivals were the Chinese, whose junks visited the Euphrates and Aden, and brought silks and spices to the Malabar coast, to be there exchanged for the raw material and manufactures of the West.

The Eastern produce brought by the Arabs to the ports of the Mediterranean was conveyed to Europe by the merchants of Venice, Genoa, Pisa, and other towns, who also traded to Constantinople and the Black Sea. Venice, from its geographical position, was well adapted to be the intermediary between East and Central Europe, and even before the rise of Islam a large share of the carrying trade of the Mediterranean had fallen into its hands through the apathy and luxurious indolence of the Byzantines. It is unnecessary to trace the rise of Venice or discuss the impetus given by the Crusades to commercial intercourse between the East and Western Europe: it will be sufficient to note that in the first quarter of the fifteenth century the carrying trade of the Mediterranean was wholly in the hands of the Venetians, and Venice had become the distributing centre for all Europe. Venetian fleets, well guarded by war galleys, sailed at stated times for Constantinople and the Black Sea, for Syria and Egypt, for France, for Spain and Portugal, and for Holland. From the ports in those countries, as well as from Venice herself, the products of the East were carried inland over well-defined trade routes, and cities such as Pavia, Nürnberg, and Bruges, the emporium of Hanseatic League, rose to importance as *entrepôts* of Eastern commerce.

The victorious advance of the Turks, the fall of Constantinople, the piracy in the Mediterranean, and the termination of all intercourse with China on the decline of the Mongol dynasty in the fourteenth century, combined with other circumstances to turn men's minds towards the discovery of a more convenient way to the East. India was the dream of the fifteenth-century merchant, and how to reach it by a direct sea voyage was the problem of the day. The problem was solved when Vasco de Gama reached the shores of India on May 20, 1498, and its solution was due to the wise policy of a great-grandson of Edward III., Prince Henry of Portugal. "The Navigator," who unfortunately died before success was attained. The discovery of the Cape route was no mere accident, but the result of scientific training, deep study, careful preparation, and indomitable perseverance. Prince Henry, having determined to find a direct sea route to India, invited the most eminent men of science to instruct a number of young men, who were educated under his own eye, and in a few years he made the Portuguese the most scientific navigators in Europe. The successful voyage of Vasco de Gama soon produced important results. The saving in freight by the direct sea route was enormous, and when it became generally known that the products of the East could be obtained much cheaper in Lisbon than anywhere else, that city became the resort of traders from every part of Europe. From Lisbon Indian commodities were carried to Antwerp, which soon became the emporium of Northern Europe. By these changes the trade of Venice was almost annihilated, and Lisbon became the richest commercial city in Europe. The Venetians had endeavoured to confine commerce within its existing limits, and to keep to the trade routes then in use. They had never made any attempt to enlarge the sphere of nautical and commercial enterprise, and the consequence was that their ablest seamen, imbued with the spirit of adventure, took service in the Western States. When the Cape route was discovered, instead of attempting to secure a share in the direct sea trade,

they entered into an alliance with the Sultan of Egypt to crush the Portuguese, and built a fleet for him at Suez, which was defeated by Almeida in 1508. After this defeat the trade of Venice soon passed away.

Since the discovery of the Cape route there has been one long struggle for the possession of the commerce of India. Who should be the carriers and distributors of Indian commodities was for more than two and a half centuries a much-contested point amongst the maritime nations of the West. At first there seems to have been a general acquiescence in the claim of the Spaniards and Portuguese to a monopoly of the southern sea-routes, and this led to those heroic efforts to find a north-east or north-west passage to India which have so greatly added to our geographical knowledge. Failure in this direction was followed by attempts to reach India by the Cape in the face of the hostile attitude of Spain and Portugal. The mighty events which in turn transferred wealth and commerce from Lisbon to Antwerp, Amsterdam, and the banks of the Thames are matter of history, and it is scarcely necessary to say that at the close of the Napoleonic wars England remained undisputed mistress of the sea, and had become not only the carrier of all ocean-borne traffic, but the distributing centre of Indian goods to the whole world. A period of keen competition for a share in the commerce of India has again commenced amongst the States of Europe, and symptoms of a coming change in the carrying and distributing trade have been increasingly apparent since Africa was separated from Asia, nearly twenty years ago, by the genius of M. de Lesseps.

The opening of the Suez Canal, by diverting trade from the Cape route to the Mediterranean, has produced and is still producing changes in the intercourse between the East and the West which affect this country more nearly, perhaps, than any other European State. The changes have been in three directions.

1. An increasing proportion of the raw material and products of the East is carried direct to Mediterranean ports, by ships passing through the canal, instead of coming, as it once did, to England for distribution. Thus Odessa, Trieste, Venice, and Marseilles are becoming centres of distribution for Southern and Central Europe, as Antwerp and Hamburg are for the North, and our merchants are thus losing the profits they derived from transshipping and forwarding Eastern goods to Europe. It is true that the carrying trade is still, to a very great extent, in English hands; but should this country be involved in a European war, the carrying trade, unless we can efficiently protect it, will pass to others, and it will not readily return. Continental manufacturers have always been heavily handicapped by the position England has held since the commencement of the century, and the distributing trade would doubtless have passed from us in process of time. The opening of the canal has accelerated the change to the detriment of English manufactures, and consequently of the national wealth, and it must tend to make England less and less each year the emporium of the world. We are experiencing the results of a natural law that a redistribution of the centres of trade must follow a rearrangement of the channels of commerce.

2. The diversion of traffic from the Cape route has led to the construction of steamers for special trade to India and the East through the canal. On this line coaling stations are frequent, and the seas, excepting in the Bay of Biscay, are more tranquil than on most long voyages. The result is that an inferior type of vessel, both as regards coal stowage, speed, endurance, and seaworthiness, has been built. These "canal wallahs," as they are sometimes called, are quite unfitted for the voyage round the Cape, and should the canal be blocked by war or accident they would be practically useless in carrying on our Eastern trade. Since the canal has been deepened they have improved, for it has been found cheaper to have more coa

stowage, but they are still far from being available for the long voyage round the Cape. Had the canal not been made, a large number of fine steamers would gradually have been built for the Cape route, and though the sailing ships which formerly carried the India and China trade would have held their own longer, we should by this time have had more of the class of steamer that would be invaluable to us in war time, and our trade would not have been liable, as it is now, to paralysis by the closing of the canal.

3. Sir William Hunter has pointed out that, since the opening of the canal, India has entered the market as a competitor with the British workman, and that the development of that part of the empire as a manufacturing and food-exporting country will involve changes in English production which must for a time be attended by suffering and loss. Indian trade has advanced by rapid strides, the exports of merchandise having risen from an average of 57 millions for the five years preceding 1874 to 88 millions in 1884, and there has been an immense expansion in the export of bulky commodities. Wheat, which occupied an insignificant place in the list of exports, is now a great staple of Indian commerce, and the export has risen since 1873 from $1\frac{3}{4}$ to 21 million hundredweight. It is almost impossible to estimate the ultimate dimensions of the wheat trade, and it is only the forerunner of other trades in which India is destined to compete keenly with the English and European producers.

The position in which England has been placed by the opening of the canal is in some respects similar to that of Venice after the discovery of the Cape route, but there is a wide difference in the spirit with which the change in the commercial routes was accepted. Venice made no attempt to use the Cape route, and did all she could to prevent others from taking advantage of it. England, though by a natural instinct she opposed the construction of the canal, was one of the first to take advantage of it when opened, and so far as the carrying trade is concerned she has hitherto successfully competed with other countries.

It is only natural to ask what the result of the opening of the Panama Canal will be. To this it may be replied that the canal, when completed as a maritime canal, without locks, will promote commercial intercourse between the eastern and western coasts of America; will benefit merchants by diminishing distances, and reducing insurance charges, and possibly divert the course of some of the trade between the East and West; but it will produce no such changes as those which have followed the construction of the Suez Canal.

The increasing practice of the present day is for each maritime country to import and carry the Indian and other commodities it requires, and we must be prepared for a time when England will no longer be the emporium of Eastern commerce for Europe, or possess so large a proportion as she now does of the carrying trade. So great, however, is the genius of the English people for commercial enterprise, and so imbued are they with the spirit of adventure, that we may reasonably hope loss of trade in one direction will be compensated by the discovery of new fields of commercial activity. The problem of sea-carriage has virtually been solved by the construction of the large ocean steamers which run direct from port to port without regard to winds or currents; and the only likely improvement in this direction is an increase of speed which may possibly rise to as much as thirty knots an hour. The tendency at present is to shorten sea-routes by maritime canals; to construct canals for bringing ocean-going ships to inland centres of industry; and to utilise water carriage, wherever it may be practicable, in preference to carriage by land. For a correct determination of the lines which these shortened trade routes and great maritime canals should follow, a sound knowledge of geography and of the physical condition of the earth is necessary; and instruction in this direction should form an

important feature in any educational course of commercial geography. The great problem of the future is the inland carrying trade, and one of the immediate commercial questions of the day is—who is to supply the interiors of the great continents of Asia and Africa, and other large areas not open to direct sea traffic? Whether future generations will see

“The heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales,”

or some form of electric carriage on land, may be matter for speculation; but it is not altogether impossible to foresee the lines which inland trade must follow, and the places which must become centres of the distributing trade, or to map out the districts which must, under ordinary conditions, be dependent upon such centres for their supply of imported commodities. The question of supplying European goods to one portion of Central Asia has been partially solved by the remarkable voyage of Mr. Wiggins last year, and by the formation of the company of the “Phoenix Merchant Adventurers.” Mr. Wiggins started from Newcastle-on-Tyne for Yeniseisk, the first large town on the Yenisei, some 2,000 miles from the mouth of that river, and within a few hundred versts of the Chinese frontier. On the 9th October, 1887, he cast anchor and landed his cargo in the heart of Siberia. The exploit is one of which any man might well be proud, but in Mr. Wiggins’s case there is the additional merit that success was the result of conviction arrived at by a strict method of induction, that the Gulf Stream passed through the Straits into the Kara Sea, and that its action, combined with that of the immense volume of water brought down by the Obi and Yenisei, would free the sea from ice and render it navigable for a portion of each year. The attempts of England to open up commercial relations with the interior of Africa have too often been marked by want, if not open contempt, of geographical knowledge, and by a great deficiency of foresight; but the competition with Germany is forcing this country to pay increased attention to African commerce, and the formation of such companies as the British East African Company, the African Lakes Company, and the Royal Niger Company is a happy omen for the future.

Another branch of the subject to which attention may be briefly directed is the fact that it is becoming increasingly evident that manufactures cannot profitably be carried on at a distance from the source of the raw material and the destination of the products. In India, for instance, where the first mill for the manufacture of cotton yarn and cloth was set up in 1854, there are now over 100 cotton and jute mills, with 22,000 looms and 2,000,000 spindles; and similar changes are taking place elsewhere.

I am afraid that I have frequently travelled beyond the sphere of geography. My object has been to draw attention to the supreme importance of this country of the science of commercial geography. That science is not confined to a knowledge of the localities in which those products of the earth which have a commercial value are to be found, and of the markets in which they can be sold with the greatest profit. Its higher aims are to divine, by a combination of historical retrospect and scientific foresight, the channels through which commerce will flow in the future, and the points at which new centres of trade must arise in obedience to known laws. A precise knowledge of the form, size, and geological structure of the globe; of its physical features; of the topographical distribution of its mineral and vegetable products, and of the varied forms of animal life, including man, that it sustains; of the influence of geographical environment on man and the lower animals; and of the climatic conditions of the various regions of the earth, is absolutely essential to a successful solution of the many problems before us. If England is to maintain her commanding position in the world of commerce she must approach these problems in

the spirit of Prince Henry the Navigator, and by high scientific training fit her sons to play their part like men in the coming struggle for commercial supremacy. The struggle will be keen, and victory will rest with those who have most fully realised the truth of the maxim that "Knowledge is power."

I may add that if there is one point clearer than another in the history of commerce it is this: that when a state cannot effectually protect its carrying trade in time of war, that trade passes from it and does not return. If England is ever found wanting in the power to defend her carrying trade, her fate will only too surely, and I might almost say justly, be that of Venice, Spain, Portugal, and Holland.

I will now ask you to turn your attention for a few moments to another subject, Africa. In 1864 Sir Roderick Murchison alluded to the great continent in the following terms: "Looking at the most recent maps of Africa, see what enormous *lacunæ* have to be filled in, and what vast portions of it the foot of the white man has never trodden." It was then impossible to give a general sketch even of the geography of Equatorial Africa. Tanganyika and Nyassa had been discovered, and Speke and Grant had touched at a few points on the southern, western, and northern shores of the Victoria Nyanza; but we were still in ignorance of the drainage and form of the immense tract of country between the Tanganyika Lake and Zambesi; and the heart of Africa, through which the mighty Congo rolls, was as much unknown to us as the centre of America was to our ancestors in the middle of the sixteenth century. There are now few schoolboys who could not give a fairly accurate sketch of the geography of Central Africa; and a comparison of the maps published respectively in 1864 and 1888 will show how rapidly the *lacunæ* of which Sir Roderick complained are being filled in. There is still much to be done, and it is precisely in one of the few blank spots left on our maps that the man who may well be called the Columbus of Africa has so mysteriously disappeared. The discovery of the course of the Congo by Stanley has been followed by results not unlike those which attended the discovery of America by Columbus. In the latter part of the nineteenth century Africa has become to Europe what America was in the sixteenth century. Events march more rapidly now than they did then, and the efforts of the maritime nations of Europe to secure to themselves some portion of African territory and some channel through which they can pour their products into Central Africa are rapidly changing the condition of the Dark Continent.

The roads over which the land trade of Equatorial Africa now passes from the coast to the interior are mere footpaths, described by Professor Drummond in his charming book "Tropical Africa" as being "never over a foot in breadth, beaten as hard as adamant, and rutted beneath the level of the forest bed by centuries of native traffic. As a rule these footpaths are marvellously direct. Like the roads of the old Romans, they run straight on through everything, ridge and mountain and valley, never shying at obstacles, nor anywhere turning aside to breathe. Yet within this general straightforwardness there is a singular eccentricity and indirectness in detail. Although the African footpath is on the whole a bee-line, no fifty yards of it are ever straight. And the reason is not far to seek. If a stone is encountered no native will ever think of removing it. Why should he? It is easier to walk round it. The next man who comes that way will do the same. . . . Whatever the cause, it is certain that for persistent straightforwardness in the general, and utter vacillation and irresolution in the particular, the African roads are unique in engineering." No country in the world is better supplied with paths. Every village is connected with some other village, every tribe with the next tribe, and it is possible for a traveller to cross Africa without once being off a beaten track. The existence, nearly everywhere, of a wide coast plain with a deadly climate, and the difficulties attending land trans-

port in a country where the usual beasts of burden, such as the camel, the ox, the horse, and the mule, cannot be utilised, will probably for many years retard the development of the land trade. On the other hand, the Congo with its wide-reaching arms, the Niger, the Nile, the Zambesi, the Shiré, and the great lakes Nyassa, Tanganyika, and the Victoria and Albert Nyanzas offer great facility for water transport. and afford easy access to the interior without traversing the pestilential plains. Already steamers ply on most of the great waterways—each year sees some improvement in this respect; and a road (the Stevenson Road) has been made from Lake Nyassa to Tanganyika, which will tend, if Arab raiders can be checked, to divert inland traffic from Zanzibar to Quilimane, and will become an important link in what must be one of the great trade routes in the future. It is possible, I believe, with our present knowledge of Africa, and by a careful study of its geographical features, to foresee the lines along which trade routes will develop themselves and the points at which centres of trade will arise; but I have already detained you too long, and will only venture to indicate Sawákin, Mombasa, Quilimane, or some point near the mouth of the Zambesi and Delagoa Bay, as places on the east coast of Africa, which, from their geographical position, must eventually become of great importance as outlets for the trade of the interior.

The future of Africa presents many difficult problems, some of which will no doubt be brought to your notice during the discussion which, I trust, will follow the reading of the African papers; and there is one especially—the best means of putting an end to slave-hunting and the slave trade—which is now happily attracting considerable attention. It is surely not too much to hope that the nations which have been so eager to annex African soil will remember the trite saying that “Property has its duties as well as its rights,” and that one of the most pressingly important of the duties imposed upon them by their action is to control the fiends in human form who, of set purpose, have laid waste some of the fairest regions of the earth, and imposed a reign of terror throughout Equatorial Africa.

REPORT OF THE DELEGATE TO THE BATH MEETING OF THE BRITISH ASSOCIATION.

To the Council of the Manchester Geographical Society.

Gentlemen,—I have the pleasure to report that I duly attended the meeting of the British Association at Bath, as the delegate of the Society. On announcing my arrival, the committee of the Geographical Section did me the honour to enrol me as one of their number. I understand that this was a courtesy and not compulsory according to the rules of the Association. I may be permitted to suggest that, though no complaint on this score can be made against Section E, steps should be taken to make membership of the committee of a section or sections specially selected by the corresponding society a right of duly-authorised delegates.

I attended the committee meetings of the Geographical Section, and in accordance with the request of one of the members of your Society endeavoured to secure a hearing for certain proposals of M. Tondini de Quarenghi relative to unification of time and the adoption of a universal prime meridian, but without success. M. de

Quarenghi's paper was, however, accepted by the Physics Section (A), and a committee was appointed to report on his proposals.

There was nothing in the other papers brought before the section which seems to me to call for special remark.

I attended the conference of delegates. No question of a specially geographical nature was brought before the conference; but I have been requested to invite the attention of the Society to a resolution passed by the Corresponding Societies Committee as follows:—

"That, in transmitting a copy of the report of the Bath Conference to the several corresponding societies, they should be requested to send to the committee a statement whether they are disposed to undertake the charge suggested with regard to the protection of ancient monuments in their districts, and how far they anticipate being able to exercise that protection."

How far the Society will consider the protection of ancient monuments to come within the scope of its labours it is not for me to say; but I may be permitted to suggest that a scheme of co-operation with other learned societies in this district might be devised, which, without involving a serious departure from the special functions of the Society, might directly or indirectly aid in the attainment of an object which cannot fail to recommend itself to the sympathy of all who take an interest in geographical science in the broadest sense of the term.

I have also been requested to call your attention specially to the investigation of the seasonal variations of temperature in lakes, rivers, and estuaries in the various parts of the United Kingdom, for which a special committee has been appointed. In this case also the investigation is one of more immediate interest to naturalists (especially ichthyologists) and physicists than to geographers pure and simple. But as the opportunities of explorers have enabled them to contribute very abundantly to the kindred sciences, and to derive advantage from them, the investigation may be one which will recommend itself to those of your members who have opportunities of aiding in it, as an element of physical geography.

A proposal in which I felt much interest was one for systematically collecting and preserving photographs of geological sections. Here, again, the suggestion seems to have some bearing on physical geography; and it may be added that the idea is capable of elaboration to the extent of the collection and grouping of photographs of land contours, and other geographical features, in a way which might result in some interesting generalisations.

Amongst the special committees appointed by the Association was one for continuing the investigation of the geography and geology of the Atlas range of mountains in Morocco by Mr. Joseph Thomson.

Herewith I enclose the printed report of the conference of delegates already referred to, containing interesting details concerning the several matters which I have been requested to submit to the consideration of the Society. I also enclose a complete list of the research committees appointed by the Association at the Bath meeting. In conclusion, I would request you to express to the Society my high appreciation of the honour conferred on me by my appointment as its delegate.—

I am yours faithfully,

F. J. FARADAY.

Literary and Philosophical Society's House,
36, George Street, Manchester, December 11, 1888.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Conference of Delegates of Corresponding Societies held at Bath, 1888.

The Corresponding Societies Committee of the British Association beg to report to the Corresponding Societies that the meetings of the conference were held on Thursday, September 6, and Tuesday, September 11, at 3.30 p.m., in the Grammar School. The following delegates were nominated for the Bath meeting, attendance at the first conference being indicated by the letter A, and at the second conference by the letter B.

- A. Rev. H. H. Winwood, M.A., F.G.S....Bath Natural History and Antiquarian Field Club.
- A. B. Mr. Wm. Gray, M.R.I.A.Belfast Naturalists' Field Club.
- A. B. Mr. John BrownBelfast Natural History and Philosophical Society.
- A. B. Mr. Ch. PumphreyBirmingham Natural History and Microscopical Society.
- Mr. J. KenwardBirmingham Philosophical Society.
- A. Rev. T. Hincks, F.R.S.Bristol Naturalists' Society.
- Mr. H. T. Brown, F.G.S., F.C.S.Burton-on-Trent Natural History and Archeological Society.
- A. Mr. T. H. ThomasCardiff Naturalists' Society.
- Rev. J. M. Mello, M.A., F.G.S.Chesterfield and Midland Counties Institution of Engineers.
- A. B. Mr. T. Cushing, F.R.A.S.Croydon Microscopical and Natural History Club.
- A. Mr. G. H. Bailey, D.Sc., Ph.D.Cumberland and Westmoreland Association for the Advancement of Literature and Science.
- Mr. J. C. Mansell-Pleydell, J.P.Dorset Natural History and Antiquarian Field Club.
- A. B. Mr. A. S. Reid, M.A., F.G.S.....East Kent Natural History Society.
- A. B. Mr. Robert Brown, C.E., R.N.East of Scotland Union of Naturalists' Societies.
- A. B. Mr. Ralph Richardson, F.R.S.E.Geological Society of Edinburgh.
- A. B. Prof. R. Meldola, F.R.S., F.C.S.Essex Field Club.
- B. Mr. D. Corse Glen, F.G.S.Geological Society of Glasgow.
- Prof. F. O. Bower, M.A., D.Sc.Natural History Society of Glasgow.
- A. B. Dr. H. MuirheadPhilosophical Society of Glasgow.
- A. B. Mr. J. Hopkinson, F.L.S., F.G.S....Hertfordshire Natural History Society and Field Club.
- A. B. The Deemster GillIsle of Man Natural History and Antiquarian Society.
- A. B. Mr. S. A. Adamson, F.G.S.Leeds Geological Association.
- Mr. G. F. Deacon, M.Inst.C.E.Liverpool Engineering Society.
- A. B. Mr. F. T. Mott, F.G.S.Leicester Literary and Philosophical Society.
- A. Mr. G. H. Morton, F.G.S.Liverpool Geological Society.
- Mr. F. J. Faraday, F.L.S.Manchester Geographical Society.
- A. Mr. Mark Stirrup, F.G.S.Manchester Geological Society.
- Mr. R. G. DurrantMarlborough College Natural History Society.]
- A. Mr. E. B. Poulton, M.A., F.L.S.Midland Union of Natural History Societies.
- A. B. Prof. G. A. Lebour, M.A., F.G.S.North of England Institute of Mining and Mechanical Engineers.
- Dr. J. T. Arlidge, M.A.North Staffordshire Naturalists' Field Club.
- Mr. C. A. Markham.....Northamptonshire Natural History Society and Field Club.
- Mr. Matthew Blair, F.G.S.Paisley Philosophical Institution.
- A. B. Mr. Robert Brown, C.E., R.N.Perthshire Society of Natural Science.
- A. B. Mr. H. R. Mill, D.Sc.Royal Scottish Geographical Society.
- Mr. W. AndrewsWarwickshire Naturalists' and Archaeologists' Field Club.
- A. Mr. J. W. Davis, F.G.S.Yorkshire Geological and Polytechnic Society.
- A. B. Rev. E. P. Knubley, M.A.Yorkshire Naturalists' Union.

At the first conference the chair was taken by Dr. John Evans, Treasurer R.S., the Corresponding Societies Committee being represented by General Pitt-Rivers, Sir Douglas Galton, Professor Boyd-Dawkins, Professor T. G. Bonney, Mr. W. Whitaker, Mr. G. J. Symons, Mr. W. Topley, Dr. Garson, Mr. J. Hopkinson, Mr. W. White, and Professor R. Meldola (secretary).

The Chairman moved that in order to save time the report of the Corresponding Societies Committee to the General Committee, printed copies of which had been distributed among the delegates, should be taken as read. This was put to the meeting and carried.

The delegates were invited to make any statements respecting the work done by the committees appointed last year, or in connection with other subjects referred to in the report.

THE ANCIENT MONUMENTS ACT.

A discussion with respect to the working of this Act took place, in the course of which Dr. Muirhead pointed out that a Bill was now before Parliament which, if passed, would place the by-paths in Scotland under the control of a public officer, and he suggested that the ancient monuments might be dealt with in the same way.

Dr. Mill stated that the Royal Scottish Geographical Society had appointed a sub-committee to take the matter into consideration.

The Deemster Gill said that the provisions of the Ancient Monuments Act did not apply to the Isle of Man, but it would doubtless interest the meeting to know that an Act had lately (1886) been passed by the Manx legislature, somewhat, though not exactly, on the lines of the Imperial Act, for the preservation of ancient monuments, of which there were many of great interest in the island. The Act was permissive only, and owners might place monuments under its protection either permanently or provisionally. The monuments which were thus protected were vested in seven trustees, three *ex officio* and four appointed by the governor. These trustees resided in different parts of the island, and thus local interest was secured for the different localities. A copy of the Manx Act would be forwarded to the secretary of the conference.

Mr. Wm. Gray called attention to the desirability of drawing up correct lists of existing remains, and of having their positions registered on approved maps, on a uniform plan, and by means of some generally recognised system of signs. He thought that the delegates might see that such lists and maps were prepared for their own localities, the results being finally collected and transferred to one general map of the whole kingdom. The Belfast Naturalists' Field Club, which he represented, would be glad to assist in the work, and had already prepared maps and lists for the north of Ireland, which were only waiting for the approved set of signs.

Professor Boyd Dawkins alluded to the necessity of having the work done as rapidly as possible; and Mr. J. W. Davis pointed out that the International Archaeological Congress, which met at Stockholm in 1874, had adopted a set of signs which had been published in the *Comptes Rendus* of the Congress as well as in the *Journal* of the Anthropological Institute. He thought that these signs might well be adopted and used on the one-inch Ordnance map. Mr. F. T. Mott suggested that it would be an advantage if these signs could be reprinted and circulated among the local societies willing to take part in the work.

The chairman (Dr. Evans) stated that two distinct bodies were now at work upon this proposed catalogue of ancient remains, the British Association Committee, of which Mr. Davis was the secretary, and the Society of Antiquaries. The last-named society proposed to summon a congress of delegates from all the local archaeological societies in the course of the following year, with the object of promoting a complete archaeological survey of the whole country. This, of course, need not interfere with the surveys by the local societies. With respect to maps, he remarked that a small scale, viz., $\frac{1}{4}$ in. to the mile, had been adopted in the "Archæologia," and in the course of the next year a survey of Kent would appear in that publication.

General Pitt-Rivers, Inspector of Ancient Monuments, pointed out that the proposed archaeological survey was quite distinct from the Ancient Monuments' Act, the working of which he had fully explained in his address to the Anthropological Section. After remarking that none of the local societies had rendered any assistance in getting the landowners in their districts to place their monuments under the protection of the Act, the inspector stated that these societies were, in the present state of the law, in a better position to see to the preservation of their ancient monuments than any Government inspector, and he urged upon the delegates the

necessity of recommending their respective societies to take this duty upon themselves. The Bill as at first drafted was intended to have been compulsory, but in its present form it was only permissive. He did not think the Government should be made responsible for the preservation of all the ancient monuments, but he was decidedly of opinion that the Act should be modified, and that more authority should be given to the inspector. As he had stated in his presidential address that morning, he had obtained eleven new monuments last year, but had been obliged to resign three because the Government would not consent to take them over.

Sir John Lubbock observed that as the Act was originally framed the proposal was as follows: The monuments mentioned in the schedule to the Bill, and any others subsequently included in the list by the authority constituted, were declared to be ancient national monuments within the meaning of the Act. If then the owner of any such monument wished to destroy or mutilate it, he was bound before doing so to give notice to the proper authority, who then had three months to consider whether it should be purchased for the purpose of being preserved. This would have enabled local authorities and local societies to acquire such properties. The present Act was inoperative unless owners voluntarily placed their monuments under it. He (Sir John Lubbock) was glad to see that so many owners had done so, and he was surprised to hear that the Government had hesitated to accept any ancient monument. The expense was small, and he was sure that Parliament would not grudge the money. He thought it would be very desirable if local societies would either induce the local authorities or would themselves take over the preservation of monuments in their own neighbourhood. They would thus be much more effectively preserved, and in that case it was probable that the numbers placed under the protection of the Act might be considerably and quickly increased. He was not sure whether this could not be done under the Act as it stands, but if not he should think it might be amended without much difficulty. At the same time he confessed he should like to go further. These monuments were of national interest, and he thought it was not too much to ask, as a general provision applying to all such remains, that the owner, before destroying them, should at least give the nation the opportunity of purchasing and preserving them.

WORK OF OTHER COMMITTEES, AND SUGGESTIONS.

Temperature Variation in Lakes, Rivers, and Estuaries.—Dr. H. R. Mill stated that the report of this committee had been drawn up, and would be presented to Section A. He proposed to submit the result to the delegates at the next conference.

Earth Tremor Committee.—Professor Lebour reported that the committee was about to apply for reappointment, with the object of, in the first place, prosecuting inquiries as to the best form of instruments and the best conditions with respect to locality, foundation, &c., for fixing up such instruments. Several societies and individuals had expressed their willingness to co-operate as soon as these conditions had been determined, and the Birmingham Philosophical Society had made a grant towards the expenses of these preliminary trials. Professor Lebour stated also that the North of England Institute of Mining and Mechanical Engineers had recently appointed a committee armed with a substantial grant to make a series of experiments on so-called "Flameless Explosives." This committee was now at work, and would gladly receive assistance in any way from kindred societies. The same Institute had joined with the Mining Institutes of South Wales and Scotland in forming another committee to conduct a series of experiments on fan ventilation. He thought that these were examples of the kind of co-operation which the Conference of Delegates of Corresponding Societies was likely to bring about.

At the second conference the chair was first taken by the secretary, Professor R. Meldola, and afterwards by the vice-chairman, Mr. W. Whitaker, the committee being further represented by Mr. J. Hopkinson and Mr. W. White, and towards the close of the meeting by Dr. Evans, who had been detained at the Committee of Recommendations.

The Chairman, in opening the proceedings, said that it would be best to adopt their usual plan and consider the suggestions and recommendations from the different sections in their proper sequence.

SECTION A.

Temperature Variation in Lakes, Rivers, and Estuaries.—Dr. Mill said that he wished to point out some of the results that had been obtained by the committee

appointed to make the investigations in conjunction with the local societies represented in the Association. He had a diagram which showed the work done more precisely than he could explain in a short time. The committee had twenty observers working at various rivers. Most of these rivers were in Scotland, only one or two being in England, while no observations had been started in Ireland. Their investigations showed that while in some rivers, particularly the Aray, the temperature was increased by rainfall, in others this condition was reversed, the temperature being found to suddenly fall during rain. He wished to impress upon the delegates the advisability of extending their observations throughout Scotland and England, and also of extending them to Ireland. Professor Fitzgerald, the president of Section A, who was a member of the committee, took a great interest in the subject, and had expressed an opinion that Mr. Symons's rain-gauge observers might make personal observation. Dr. Mill advised all observers to use the thermometer which he exhibited, and which he said was durable and cheap. He trusted that delegates on returning home would lay the subject before their societies, give them some idea of the work of the committee, and induce them to co-operate and make observations in their respective localities. Circulars, he added, would be sent to the societies and to Mr. Symons's rain-gauge observers, and it was hoped that this would bring the question well before them. It would give local societies an opportunity of doing what they professed to do, and he was perfectly certain they were anxious to promote real scientific work. The observations could be made with very little training, and the investigations of conscientious observers would lead to interesting results, as they would be considered by the committee in connection with the temperature and rainfall of the districts in which they were made. In reply to questions by Mr. Cushing and the Rev. E. P. Knubley, Dr. Mill said that the thermometer readings were taken at a depth of six inches below the surface of the water, and that the fullest particulars would be supplied by the committee to any society wishing to take part in the observations.

SECTION B.

No recommendations sent or suggestions made.

SECTION C.

Professor Lebour, who had been nominated as the representative of the committee of this section, said that the committees on (1) sea-coast erosion, (2) underground waters, (3) erratic blocks, and (4) earth tremors, the working of which had been explained to the delegates on former occasions, had been recommended for reappointment.

Geological Photography.—Professor Lebour further informed the delegates that in consequence of a paper read before Section C by Mr. O. W. Jeffs on local geological photographs it was proposed by the committee of the section that a committee should be appointed to collect and register such photographs. The proposal at present was so indefinite that there was no chance of the Committee of Recommendations dealing with it this year, but they gave the suggestion their cordial sympathy, and it was formally passed on to the meeting of delegates. It was hoped that delegates of corresponding societies, by discussing the matter among themselves, would have it so organised and ready to place before the committee of the section next year, and ultimately before the Committee of Recommendations, in such a form that a committee of the Association might be appointed, with a small grant, to work the scheme satisfactorily. It was thought by the committee of the section that too many restrictions as to the uniformity of the photographs should not be enforced in the early stages of the scheme. The simple collection and registration of photographs was all that was at present aimed at. The following suggestions with reference to this subject were forwarded by the committee of the section to the secretary of the conference:—

"1. That a committee be formed, having representatives for each county, charged with the arrangement of a local photographic survey for geological purposes in each district.

"2. The committee will gather together (a) names of societies and individuals who have already assisted in this object, or who are willing to do so; (b) copies of geological photographs already taken; (c) list of localities, sections of rocks, boulders, and other features desirable to be photographed; and will arrange with local societies for the work to be done as may be convenient or possible.

"3. Each photograph to be accompanied by the following particulars: (a) Name and position of locality or section; * (b) details of features shown (with illustrative diagram or sketch whenever necessary for such explanation); (c) scale of height and length, or figure introduced to indicate size in nature; (d) name of photographer and society under whose direction the view is taken; (e) date when photographed.

"4. Size of photograph recommended, 12in. x 10in. (whole plate), but this is not compulsory.

"5. Original negative to be the property of the society or individual under whose direction it is taken, and who shall also fix a price at which copies may be sold.

"6. One copy of each photograph to be the property of the British Association, and one other copy to be given to the Geological Society of London.

"7. Each photograph officially received to be numbered and recorded in a reference-book, and a list published and circulated showing price at which members and others may purchase them.

"8. A circular to be issued to all geological societies inviting their co-operation."

Mr. Jeffs said that a large number of societies in different parts of the kingdom had taken from time to time photographs of various geological sections and features as they came under their notice, but there had been no systematic way adopted either of collecting the photographs or of recording them, so that geologists interested might really know what had been taken. He thought that if some arrangement could be made, a great deal of good might be done not only for the benefit of geological science but also for educational purposes. Regarding regulations, he was not desirous of laying down any strict rules, but he thought that if the scheme were to be carried out at all satisfactorily, and at a minimum expenditure, some few regulations would be necessary. Mr. Whitaker thought it a very fit subject for the conference, and trusted that delegates would get their societies to think it over. The object was to interest all the societies and to have a harmonious result. Some further discussion took place with reference to the requirements of the proposed committee and the mode of procedure in the field, in the course of which it was pointed out that the chief object was to secure photographs of typical and especially of *temporary* sections. The details of manipulation, the size of the photographs, method of mounting, registration of scale, &c., could only be settled when the corresponding societies had taken action in the matter and the committee had been formally appointed.

International Geological Congress.—Mr. Hopkinson called the attention of the delegates to this congress, and pointed out the conditions under which societies could get the volume of Proceedings. He suggested that every society which intended to publish geological maps should ascertain the rules as to nomenclature and colouring adopted by the congress, so that some degree of uniformity might be arrived at.

SECTION D.

The committee of this section was represented by Professor Hillhouse.

Life-histories of Native Plants.—Professor Meldola said that since their last meeting at Manchester, Professor Bayley Balfour had received several applications for further particulars with reference to the suggestion which he communicated to last year's conference. Professor Balfour was unable to be present at Bath, but had forwarded the following suggestions for those studying the Life-Histories of British Flowering Plants:—

"1. Seeds should be collected, and opportunity may be taken at the time of collection to note how they are disseminated in nature—whether the fruit opens or not, whether they have appendages for promoting transport by animals or otherwise, whether they have colour or other features of attraction, &c.

"2. The seeds being sown, their germination should be watched; its rapidity and manner noted. The variations and differences between albuminous and exalbuminous seeds are worthy of special note. The movements of the parts of the embryo in germination until it acquires its fixed position are also deserving of study. Further, the form of the parts of the embryo is various and instructive.

"3. The development of the seedling into the adult can be readily watched in annuals and biennials and smaller perennials. The succession of leaves after the cotyledons should be noted, and the forms which the leaves assume and their positions and spread. The relative succession of buds in or adjacent to the axils of the later

* Including compass direction.—*Sec. Cor. Soc. Comm.*

leaves and of the cotyledons should be observed, as also the ultimate fate of the buds developed. This will give a clue to the branching of the main axis of the plant, upon which its whole form and habit depend.

"4. An important point to look at in the development is the amount, character, and position of any clothing of hairs the seedling may possess.

"5. The development of the underground part of the seedling must not be neglected. The continuance of the primary root and its branching or its replacement by adventitious roots are points for particular attention, and also the formation upon it of any excrescences or buds. A sufficient number of seedlings must be grown to allow of proper study of these features.

"6. The form of branching of the stem and leaves may be studied in the mature plant which may be gathered wild. The formation of false axes should be specially looked for, and the complex relations often resulting from branching may be worked out upon the young top of a mature plant. It is not necessary to wait for the maturing of the seedling, but reference back to the seedling will show whether any observed relations are of late or early development in the life-history.

"7. In the case of perennials, the mode of perennation is an interesting feature for observation, as well as the methods of vegetative propagation. In some cases the two processes are merged in one. Properly to understand perennation the perennating portions must be examined at all periods of the resting season as well as when they are starting anew into vegetative activity. Seedlings of perennating plants watched during two or three seasons will give a clue towards elucidation of the development.

"8. When the seedlings begin to form flowers the relation of the flower-shoots to the vegetative organs should be noted, and especially their sequence with reference to vegetative shoots. The succession of the flowers should be noted, as, of course, should be their structure and their adaptations to proper pollination. Many seedlings will not, of course, flower for years, and the sequence of flowers in such plants, and, indeed, in all cases, may be well traced in the mature plant growing wild.

"9. After flowering and pollination the development of fruit must be studied. The parts concerned in forming fruit, the adaptations to scattering of the fruit or seed, are points to be precisely noted.

"10. The presence and position of any nectar-secreting structures, outside as well as inside the flower, are of much significance, and they should be carefully studied.

"11. In connection with every point observed of structure and development, the observer should ask himself, Why is this? What is this for? and endeavour to obtain some answer to the query.

"12. A series of observations upon a specific plant made by a careful observer will enable him or her to draw up a complete history of its life such as is hardly to be found recorded at the present day.

"I may add as a corollary that an interesting field for observation which local societies might do good work in is that of the relation of plants to animals as food plants. Some are discarded by browsing animals, others are preferred, and there are degrees of favouritism. Is there any principle of selection?"

Professor F. O. Bower, the delegate from the Natural History Society of Glasgow, who was unable to be present at the meeting, forwarded the following communication with reference to this subject: "While heartily endorsing Dr. Balfour's proposal that local societies should turn their attention more directly to the study of the life-histories of plants rather than to mere record of new or rare forms, I fear that a direct diversion of the current of work into this direction will have its dangers which the societies must be prepared to meet at the outset. Of these the chief would be that in concentrating attention on the life-history the true identification of the species might be overlooked, and so observations, otherwise of great value, might be worse than useless. This danger would not be serious in the case of experienced members, who would merely extend with further detail their present observations on species which they already know. The danger is rather in the case of younger members, from whom the greater amount of work is to be expected. Unless there were some method of supervision there would be danger of observations on imperfectly identified plants being recorded. That even experienced botanists may make mistakes of identity of plants is shown by a case quoted in his address by the president of Section D, and this will serve to indicate that caution as to the true identity of the plants in question is imperative. I should suggest, therefore, in order to avoid such mistakes, that before any society proceeded to publish observations, the identity of species to which the observations refer be carefully verified by a committee of experienced members, specimens being in all cases sent in with the drawings and descriptions. These should

be preserved as a guarantee of identity of the species in question. In the cases of critical species a reference of the specimens to some known specialist on that genus would certainly enhance the value of the observations. This may at the outset appear a needless waste of trouble, but I would urge that the value of such observations as those suggested in Dr. Balfour's admirably drawn-up schedule will depend greatly upon the true recognition of the plants concerned, while even a very few mistakes would cause a want of confidence in the whole scheme. I even think that a central registration of the results would be an advantage so as to prevent disappointment by duplicate observation of the same plants, but the drawing together of so many independent and scattered societies into one system would probably present too many difficulties for practical working. I have every wish for the success of the line of work suggested by Dr. Balfour."

Disappearance of Native Plants.—Professor Hillhouse said that he was in charge of a committee appointed two years ago for the purpose of collecting information as to the disappearance of plants from their local habitats. Their report for 1887 said the committee intended presenting a report in 1888 concerning its inquiries in Scotland. He came to that meeting prepared with a report, and learnt, to his surprise, that the committee had lapsed; but an application had been made to the committee of Section D to have it reappointed. He would give some brief account of their work in the past year. The report for Scotland covered 85 flowers which were extinct, or were "practically extinct," and they were of the most varied kinds. It had been discovered that *Nymphaea alba* (the white water lily) had been almost exterminated in the lochs about Dumfries. The name of the person who had committed the ravages upon it was brought before the local Natural History Society, an appeal was made to the proprietors of the lochs, and the individual was warned off estates in the neighbourhood on pain of prosecution for trespass. There was one plant that had only a single station in Scotland, *Scheuchzeria palustris*, which was found in the Bog of Methven, and it had been destroyed in all probability by 300 or 400 black gulls settling in the bog and devouring everything in the shape of vegetation. Another plant which had been completely exterminated was one known as *Mertensia maritima*, which grew in shingle on the Bay of Nigg, and which had been destroyed by the shingle having been used to make concrete blocks to be used in the construction of a pier near at hand. Then a grass which grew in a patch near the Moray Frith had been destroyed by the overturning of a tree, which caused a large hole, into which all the moisture of the patch drained. This grass was *Melica uniflora*. The committee found that the disappearance of plants was caused in a great measure by the injudiciousness of individual botanists, and also by botanical exchanging clubs who held out inducements for the collection of 80 or 100 specimens of extremely rare varieties. The committee hoped to present a report next year.

No recommendations or suggestions were made from the other sections. Under Section H, Mr. Gray expressed a hope that some means would be taken to circulate the approved signs for the registration of prehistoric remains on the maps.

SOCIETIES NOT ENROLLED AS CORRESPONDING SOCIETIES.

Mr. White submitted a list of societies which he suggested should become associated with the British Association. They were, of course, societies which published papers and did local work. He thought that every county should be in some way represented at the meeting of the conference of delegates. In the list he had included only one or two antiquarian or archaeological societies, because these published papers on prehistoric remains, which was probably the limit which ought to be drawn in that direction.

The Secretary pointed out that this could not be considered as an official invitation to the outstanding societies to become affiliated with the British Association, as their committee had no power to issue such an invitation; but, having considered the list prepared by Mr. White, he (the secretary) felt no doubt that most, if not all, the societies mentioned therein would be admitted if application were made to the committee in the usual way. Professor Meldola thought the delegates might do good by calling the attention of the societies in their own counties to the advantages arising from a general co-operation of all the *working* local scientific societies in the United Kingdom.

At the conclusion of the conference votes of thanks were passed to the chairman and secretary.

Subjects for Investigation more particularly interesting to the Society for which Recommendations were adopted by the General Committee at the Bath Meeting in September, 1888.

INVOLVING GRANTS OF MONEY.

Meteorological Observations on Ben Nevis. Chairman: Hon. R. Abercromby. Secretary: Professor Crum Brown. Committee: Professor Crum Brown, Messrs. Milne-Home, John Murray, Buchan, and Lord McLaren. £50.

Seasonal Variations in the Temperatures of Lakes, Rivers, and Estuaries. Chairman: Mr. John Murray. Secretary: Dr. H. R. Mill. Mr. John Murray, Professor Chrystal, Dr. A. Buchan, Rev. C. J. Steward, the Hon. R. Abercromby, Mr. J. Y. Buchanan, Mr. David Cunningham, Mr. Isaac Roberts, Dr. H. R. Mill, Professor Fitzgerald, Mr. Sorby, and Mr. Willis Bund. £30.

Recording the Position, Height above the Sea, Lithological Characters, Size, and Origin of the Erratic Blocks of England, Wales, and Ireland, reporting other matters of interest connected with the same, and taking measures for their preservation. Chairman: Professor J. Prestwich. Secretary: Dr. H. W. Crosskey. Professors W. Boyd Dawkins, T. McK. Hughes, and T. G. Bonney, and Messrs. C. E. De Rance, D. Mackintosh, W. Pengelly, J. Plant, and R. H. Tiddeman. £10.

The Volcanic Phenomena of Japan. Chairman: Mr. R. Etheridge. Secretary: Professor J. Milne. Mr. T. Gray. £25.

The Volcanic Phenomena of Vesuvius and its neighbourhood. Chairman: Mr. H. Baerman. Secretary: Dr. H. J. Johnston-Lavis. Messrs. F. W. Rudler and J. J. H. Teall. £20.

The Natural History of the Friendly Islands, or other groups in the Pacific, visited by H.M.S. *Egeria*. Chairman: Professor Newton. Secretary: Mr. Warner. Mr. W. T. Thiselton-Dyer and Professor M. Foster. £100.

For the purpose of continuing the Preparation of a Report on our present Knowledge of the Flora of China. Chairman: Mr. Ball. Secretary: Mr. Thiselton-Dyer. Mr. Carruthers, Professor Oliver, and Mr. Forbes. £25.

For the purpose of arranging for the Occupation of a Table at the Zoological Station at Naples. Chairman: Dr. P. L. Slater. Secretary: Percy Sladen. Professor E. Ray Lankester, Professor Cossar Ewart, Professor M. Foster, Mr. A. Sedgwick, and Professor A. M. Marshall. £100.

Reporting on the present state of our Knowledge of the Zoology and Botany of the West India Islands, and taking steps to investigate ascertained deficiencies in the Fauna and Flora. Chairman: Professor Flower. Secretary: Mr. D. Morris. Mr. Carruthers, Dr. Slater, Mr. Thiselton-Dyer, Dr. Sharp, Mr. F. Du Cane Godman, and Professor Newton. £100.

Geography and Geology of the Atlas Ranges in the Empire of Morocco, by Mr. Joseph Thomson. Chairman: General J. T. Walker. Secretary: Mr. H. W. Bates. General R. Strachey, W. T. Thiselton-Dyer, and Professor W. Boyd Dawkins. £100.

Editing a new edition of "Anthropological Notes and Queries." Chairman: General Pitt-Rivers. Secretary: Dr. Garson. Dr. Beddoe, Professor Flower, Mr. Francis Galton, and Dr. E. B. Tylor. £50.

The Habits and Customs and Physical Characteristics of the Nomad Tribes of Asia Minor, and to excavate on sites of ancient occupation. Chairman: Dr. Garson. Secretary: Mr. Bent. Mr. Pengelly, Mr. Rudler, Mr. Bloxam, and Mr. J. Stuart Glennie. £30.

The Physical Characters, Languages, and Industrial and Social Condition of the North-Western Tribes of the Dominion of Canada. Chairman: Dr. E. B. Tylor. Secretary: Mr. G. W. Bloxam. Sir Daniel Wilson, Dr. G. M. Dawson, General Sir H. Lefroy, and R. G. Haliburton. £150.

The Effects of Different Occupations and Employments on the Physical Development of the Human Body. Chairman: Sir Rawson Rawson. Secretary: Mr. G. W. Bloxam. General Pitt-Rivers, Dr. J. Beddoe, Dr. H. Muirhead, Mr. C. Roberts, Dr. G. W. Hambleton, Mr. F. W. Rudler, Mr. Horace Darwin, Mr. G. W. Bloxam, Dr. J. G. Garson, and Dr. A. M. Paterson. £20.

Calculating the Anthropological Measurements taken at Bath. Chairman: General Pitt-Rivers. Secretary: Dr. Garson. Mr. Bloxam. £5.

That the sum of £100 be placed at the disposal of the Baths Committee of the Bath Corporation to assist in the prosecution of further researches in the Roman Baths. £100.

For carrying on the work of the Corresponding Societies Committee. Chairman: Dr. John Evans. Secretary: Professor R. Meldola. Mr. Francis Galton, Professor A. W. Williamson, Sir Douglas Galton, Professor Boyd Dawkins, Sir Rawson Rawson, Dr. J. G. Garson, Dr. J. Evans, Mr. J. Hopkinson, Professor R. Meldola, Mr. W. Whitaker, Mr. G. J. Symons, General Pitt-Rivers, Mr. W. Topley, Mr. H. G. Fordham, Mr. Wm. White, and Professor Bonney. £20.

NOT INVOLVING GRANTS OF MONEY.

To consider the proposals of M. Tondini de Quarenghi relative to the Unification of Time, and the adoption of a Universal Prime Meridian, which have been brought before the Committee by a letter from the Academy of Sciences of Bologna. Chairman: Mr. J. Glaisher. Secretary: Mr. J. Glaisher. Mr. Christie (Astronomer Royal), Sir R. S. Ball, Mr. James Glaisher, and Dr. G. B. Longstaff.

Earth Tremors. Chairman: Mr. G. J. Symons. Secretary: Professor Lebour. Sir F. J. Bramwell, Mr. E. A. Cowper, Mr. G. J. Symons, Professor G. H. Darwin, Professor Ewing, Mr. Isaac Roberts, Mr. Thomas Gray, Dr. John Evans, Professor Lebour, Professor Prestwich, Professor Hull, Professor Meldola, Professor Judd, and Mr. J. Glaisher.

The Collection and Identification of Meteoric Dust. Chairman: Mr. John Murray. Secretary: Mr. John Murray. Mr. John Murray, Professor Schuster, Sir William Thomson, the Abbé Renard, Mr. A. Buchan, the Hon. R. Abercromby, and Dr. M. Grabham.

The Promotion of Tidal Observations in Canada. Chairman: Professor Johnson. Secretary: Professor Johnson. Professors A. Johnson, Macgregor, J. B. Cherriman, and H. J. Bovey, and Mr. C. Carpmael.

The Harmonic Analysis of Tidal Observation. Chairman: Professor J. C. Adams. Secretary: Professor G. H. Darwin. Professor J. C. Adams and Professor G. H. Darwin.

Instructions for the Practical Work of Tidal Observation. Chairman: Professor Darwin. Secretary: Professor Darwin. Professor G. H. Darwin, Sir W. Thomson, and Major Baird.

Comparing and Reducing Magnetic Observations. Chairman: Professor W. G. Adams. Secretary: Professor W. G. Adams. Sir W. Thomson, Sir J. H. Lefroy, Professors G. H. Darwin, G. Chrystal, and S. J. Perry, Mr. C. H. Carpmael, Professor Schuster, Mr. G. M. Whipple, Captain Creak, the Astronomer Royal, Mr. William Ellis, Professor W. G. Adams, and Mr. W. Lant Carpenter.

The Rate of Increase of Underground Temperature downwards in various Localities of Dry Land and Under Water. Chairman: Professor Everett. Secretary: Professor Everett. Professors Everett and Sir William Thomson, Mr. G. J. Symons, Sir A. C. Ramsay, Dr. A. Geikie, Mr. J. Glaisher, Mr. Pengelly, Professor Edward Hull, Professor Prestwich, Dr. C. Le Neve Foster, Professor A. S. Herschel, Professor G. A. Lebour, Mr. A. B. Wynne, Mr. Galloway, Mr. Joseph Dickinson, Mr. G. F. Deacon, Mr. E. Wethered, and Mr. A. Strahan.

The Circulation of the Underground Waters in the Permeable Formations of England, and the Quality and Quantity of the Waters supplied to various Towns and Districts from these Formations. Chairman: Professor E. Hull. Secretary: Mr. C. E. De Rance. Dr. H. W. Crosskey, Captain Sir D. Galton, Professor J. Prestwich, and Messrs. J. Glaisher, E. B. Marten, G. H. Morton, J. Parker, W. Pengelly, J. Plant, I. Stobbs, C. Fox-Strangways, T. S. Stooke, G. J. Symons, W. Topley, Tylden-Wright, E. Wethered, and W. Whitaker.

Reporting upon the "Manure Gravels" of Wexford. Chairman: Mr. R. Etheridge. Secretary: Mr. A. Bell. Dr. H. Woodward.

An Ancient Seabeach near Bridlington. Chairman: Mr. J. W. Davis. Secretary: Mr. G. W. Lamplugh. Mr. W. Cash, Dr. H. Hicks, Mr. Clement Reid, Dr. H. Woodward, and Mr. T. Boynton.

The Rate of Erosion of the Sea Coasts of England and Wales, and the Influence of the Artificial Abstraction of Shingle or other material in that action. Chairman: Mr. R. B. Grantham. Secretaries: Messrs. C. E. De Rance and W. Topley. Messrs.

J. B. Redman, W. Whitaker, and J. W. Woodall, Major-General Sir A. Clarke, Admiral Sir E. Ommannney, Sir J. N. Douglass, Captain Sir G. Nares, Captain J. Parsons, Captain W. J. L. Wharton, Professor J. Prestwich, and Messrs. E. Easton, J. S. Valentine, and L. F. Vernon Harcourt.

The Flora of the Carboniferous Rocks of Lancashire and West Yorkshire. Chairman: Professor W. C. Williamson. Secretary: Mr. W. Cash.

For taking Steps for the Establishment of a Botanical Station at Peradeniya, Ceylon. Chairman: Professor M. Foster. Secretary: Professor F. O. Bower. Professor Bayley Balfour, Mr. Thiselton-Dyer, Dr. Trienen, Professor Marshall Ward, Mr. Carruthers, and Professor Hartog.

To make a Digest of the Observations on Migrations of Birds at Lighthouses and Light Vessels, which have been carried on during the past nine years by the Migrations Committee of the British Association (with the consent of the Masters and Elder Brethren of the Trinity House, and the Commissioners of Northern Lights), and to Report upon the same at Newcastle. Chairman: Professor Newton. Secretary: Mr. John Cordeaux. Mr. Harvie-Brown, Mr. R. M. Barrington, Mr. W. E. Clarke, and Rev. E. P. Knubley.

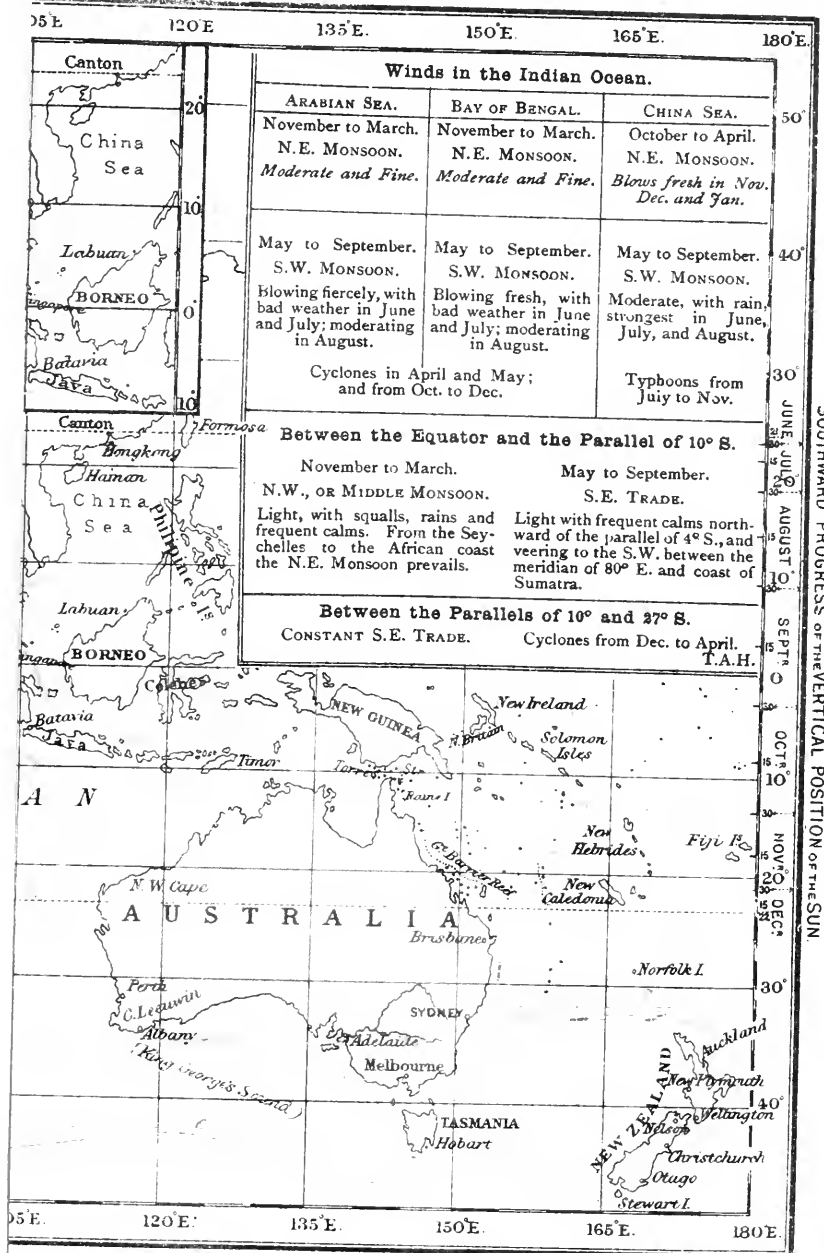
Collecting Information as to the Disappearance of Native Plants from their Local Habitats. Chairman: Mr. A. W. Wills. Secretary: Professor W. Hillhouse. Mr. E. W. Badger.

The Teaching of Science in Elementary Schools. Chairman: Dr. J. H. Gladstone. Secretary: Professor Armstrong. Mr. S. Bourne, Miss Becker, Sir J. Lubbock, Dr. Crosskey, Sir R. Temple, Sir H. E. Roscoe, Mr. J. Heywood, and Professor N. Story Maskelyne.

Our Colonial Empire.—It is an Englishman's boast that the sun always shines upon some portion of his vast empire. But with the assertion of this fact many people are willing to remain content, without considering whether there is not danger to the mother country in the wide extent of its dominions. Year by year the British colonies and possessions are entering into closer trade competition with this country, and at the same time are fenced round with fiscal arrangements very prejudicial to British interests. As regards the latter, it is almost the universal custom for the colonies to treat the imports from this country on exactly the same footing as those of foreign nations. This conduct is singular, and is not tolerated by any other nation having colonies of its own. It is easy to understand how such a state of things has come to pass. A desire for local independence has been fostered by the political rulers of this country, and in matters pertaining to what has been regarded as a non-imperial interest each colony has been allowed to follow its own will. Consequently there has not been any interference by the Home Government with the action of local legislatures on commercial matters, and this has resulted in the imposition of tariffs which bar the entry of British exports and shackle trade even among our own people. Then again, as a trade contemporary truly says, the separate colonial legislatures acting independently of one another, compile their customs tariffs without any idea of homogeneity, with the conflicting result that in British Australasia exporters have to consult no less than seven sets of tariffs in regard to their merchandise. It requires thirty-three separate references to establish the duty on rice in the Crown Colonies alone. There are no less than forty-five different colonies belonging to this country each having its own customs and fiscal arrangements, and all this interferes with trade. There is, however, a still more serious question. Without doubt many markets are being closed against British merchants, and others in which every year less business is being done. Naturally an outlet for trade is sought for in other directions, and many persons hold that this can best be found in a development of trade with our colonies and possessions. It appears to be true policy to cultivate the Australian trade. So undoubtedly it is; but then it must be remembered that other nations, who are on exactly the same footing as ourselves, are doing likewise, and side by side of us are the French, the Germans, and other smaller traders pushing their way into what should be our own market. And not foreigners alone, for India is already in the field, and the great progress it is rapidly making as an industrial power will, after a while, render it no mean competitor. Many colonies are doing their utmost to supply their own requirements, and not only their own, but those of others who have hitherto drawn their supplies from this country. These considerations should certainly exert a powerful influence upon the British public, who dare not allow the colonial trade to slip through their fingers.—*Textile Recorder*.

OWEEN ENGLAND & AUSTRALIA.

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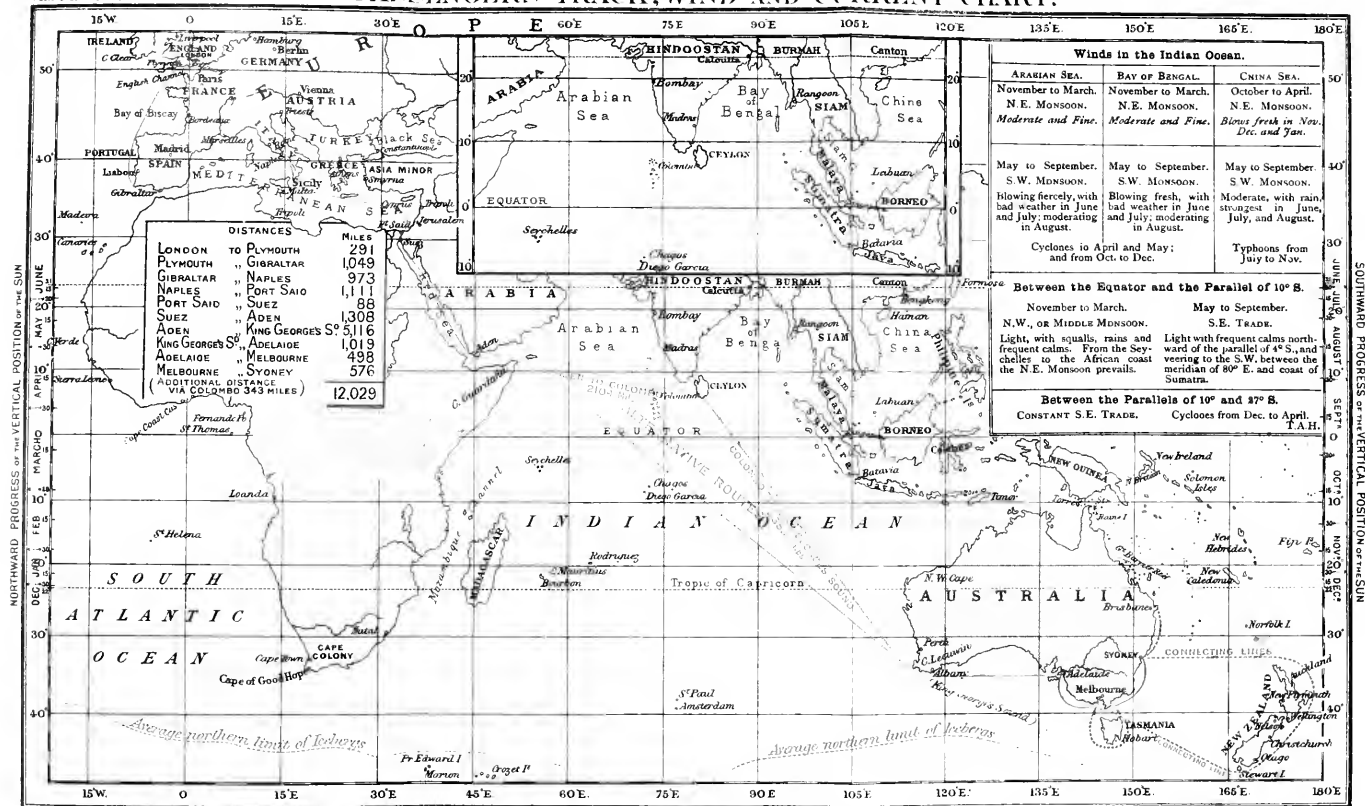


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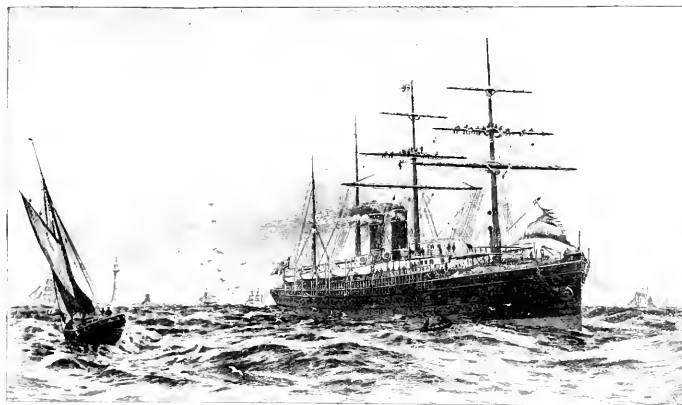
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NOTICES OF GEOGRAPHICAL WORKS.

TRAVELLERS' P. AND O. POCKET-BOOK. 1888. 2s. *Nissen and Arnold, London.*

THIS little book is the product of competition, and is an account of the P. and O. Company, with a number of portraits of ships' diagrams and maps. It is contributed to by Comte de Lesseps and Mr. Thomas Sutherland on the Suez Canal, Mr. Stanley Lane Poole on Egypt, Sir Edwin Arnold on India, Sir T. Wade on China, Mr. H. W. Lucy on Japan, and Australia by Mr. H. Nisbet. The most interesting feature of the book is the story of governmental dealings with the Company, and drives one to the conclusion that every attempt was made (until the other side of the story is told) by those in office to make it an impossibility for the Company to succeed—that in spite of all this it has succeeded which is due to the persistence of its managers and the courage of its shareholders. The treatment of foreign governments to such companies is enough to make us blush for shame.

ORIENT LINE GUIDE. CHAPTERS FOR TRAVELLERS BY SEA AND BY LAND. Illustrated. Third edition, with maps and plans. Edited by W. J. LOFTIE, B.A., F.S.A., &c. 2s. 6d. 28 illustrations, 30 maps, 13 portraits of ships, and 7 plans of ships. 440 pp., with index. *London: Sampson, Low, and Co., and Ed. Stanford, 1888.*

THIS book is a remarkable evidence of the activity of commerce. It is, of course, an advertisement for the Orient Line of Steamships, and we should be very glad if all the steamship lines would give the public such a capital volume in relation to their routes. The frontispiece is by Kate Greenaway, the illustrations are very striking, full-page, brown-tinted pictures, and the maps are good. On so small a scale we have rarely seen better maps for reference than the Atlas of Australia. The charts are interesting, and the star maps, of which there are four, will be sources of interest to all the young people. The contributors to the volume are: Dean Butcher, on Jerusalem; Mr. A. Brown, on Ships' Engines; Mrs. Henry Fawcett, on Italian Art and History and German Travel; Mr. W. B. Richmond, A.R.A., on Greece; Mr. Hannay, on the Battles of the Nile and Trafalgar; Commander Hull, on Seamanship; Mr. Norman Lockyer, on Universal Time; Mr. J. Struthers, M.B., on the Medical Aspects of a Voyage; Rev. C. H. Middleton-Wake, on the Configuration of the Earth under the Sea, and Natural History; and Sir F. Goldsmid, on Ormuz. A vivid description of the countries on both hands in a voyage from England, through the Mediterranean, the Red Sea, the Indian Ocean, and on to Australia is given, with detours as far as Munich and Berlin, the Nile Cataracts, Sinai, and Jerusalem. The scientific portion of the book, dealing with astronomy, the sea, and a beautiful chapter on the natural history of the sea, with the charming illustrations, maps, charts, &c., makes, on behalf of the publishers, a large type, spacious, very handsome, interesting, and valuable contribution to geographical knowledge. The Company have placed a number of charts at the service of our members, which will be found in this Journal.

THE POCKET GAZETTEER OF THE WORLD. A Dictionary of General Geography. Edited by J. G. BARTHOLOMEW, F.R.G.S., &c. 2s. 6d.
London: John Walker and Co., 1888.

A LITTLE book of 630 pages, with a number of small maps, the Indian names given in accordance with the spelling adopted by Sir W. W. Hunter. Very useful for the desk and for ready reference.

NAMES AND PLACES. STUDIES IN GEOGRAPHICAL AND TOPOGRAPHICAL NOMENCLATURE. By J. D. WHITNEY. *Cambridge: Printed at the University Press, 1888.*

THIS is a very interesting monograph, by Professor Whitney, of Harvard University, Cambridge, U.S. The book considers the matters referred to in six divisions. The first, the Appalachian and Cordilleran; the second, Oregon and Pend'Oreilles. Four chapters on Topographical Nomenclature—(1) Introductory; (2) Mountains, peaks, and sierras; (3) Valleys, gorges, and cañons; and (4) Plains, prairies, and savannas. The book closes with an index of geographical names. The Society is very much favoured by the gift of this geographical treasure by Professor Whitney. Only one hundred copies were printed, and the volume given to us is numbered 37. The volume is valuable as showing how interesting study of this kind can be made, and particularly to us by reason of so many illustrations and examples being drawn from this country, whilst the charm of a fine literary style enhances its value—the tracing of the names Appalachian, Cordilleran, and Pend'Oreilles (ear bobs) gives rise to a discussion of the history of the names in the maps and incidentally of the discovery of the mountains. Beginning with Cartier's sight of the Appalachian chain in 1535, mentioning De Soto (1538-1543), Laudonnière's Expedition (1564), and maps from 1633 to Guyot's paper in 1861. The question of the use of the words Alleghany and Appalachian, and their definite use in a scientific sense, is discussed. The Cordilleran is treated in the same way, and a large amount of valuable facts for reference is compressed into a small space. The origin of the words Oregon and Pend'Oreilles is extremely interesting, incidentally pointing to a great knowledge of folklore, to which indeed the whole book bears testimony. The topographical portion will command most examination from an English point of view, and it may, perhaps, be best to give an example, taken at random, as a specimen of the Professor's treatment of the subject. Under the heading, "Mountains, Peaks, and Passes," occurs the word "peak." The Professor says the word "peak" is used both in French (*pic*) and Spanish (*pico*), very much as it is in English. As examples may be mentioned "Pico de Urbion, in which heads the Duero river; Picacho de la Valeta—Pichacho being the augmentative of 'pico.' The pico, however, is the well-known island of that name in the Azores, on which is the Pico Alto, the highest point of the group. . . . A large number of high and generally pointed summits on the French side of the Pyrenees and in the French Alps bear the name of 'pic.' For example, Pic de Nêthon, Pic du Midi, &c. This word also appears in the Pyrenees in the form of 'pique,' and its diminutive 'piquette.' . . . The form in which 'peak' occurs in the Lake district of England is 'pike,' a name there given to any summit of a hill, but more generally to such as are peaked or pointed. . . . Scawfell Pike (3,160ft.) is the highest point in England proper. . . . Scawfell is an interesting name, concerning which information will be given further on, under 'scar,' or 'seaur,' and 'fell.'" "Pikes of Langdale is another curious name." "'Stickle' (A.S. *sticcel*, Ger. *stachel*) means 'a sharp point'—a word which we have only in the familiar name of a fish, the stickle-back, so called from the stickles or prickles on its back

In the name Pike o' Stickle we have a reduplication similar to that to which allusion has already been made," and so on. If all the curious things in the book had to be extracted we should have to reprint it. The book is full of matter for the mere reader, but for the teacher and the student it is invaluable.

THE MULTUM IN PARVO ATLAS OF THE WORLD. 2s. 6d. *W. and A. K. Johnston, Edinburgh and London, 1889.*

WE have been favoured with an advanced copy of this small atlas. The publication by Philips, Walker, and Johnston in rapid succession of a number of small, fairly well-printed atlases, are attempts more or less successful, and is an evidence of the pressure brought to bear on geographical questions, and the awakening of our home folk to the splendid way these things are produced abroad. None of the books yet published in English are fit to compare with "Perthes' Taschen Atlas." In that book the maps are all engraved for the purpose. All our English publishers, more or less, make use of old material lying by them, with the result that when you have a new map on the latest lines you have comparative excellence, joined with which we have bald, featureless work, unpleasant and uninforming to see. This little book has 96 plates, astronomical, physical, and political geography being fairly represented, with statistical and other notes printed on the back of the maps, with a pretty full index of 112 pages. It is an admirable book for the pocket, and handy for the desk; and it is wonderful how so full a book can be produced at a profit to the publisher at the price. Our members will be glad to have their attention drawn to this little atlas, which will be equally valuable for use in the school, office, or lying by the hand for ready reference at home.

LETT'S POPULAR ATLAS OF THE WORLD. 155 Maps and Plans (18 entirely new), corrected to date, and an entirely New Reference Index of about 100,000 Names of Places, with their Latitude, Longitude, Location, and Number of Page in the Atlas. Price from 42s. *Mason and Payne, London, E.C.*

THIS atlas, as its title sets forth, is intended for popular use, and is a new edition of Letts's well-known popular atlas, published in parts some time ago. The present publishers of the book have had the plates thoroughly revised, have added several new ones, and have re-issued the book as a new edition. The first edition of this atlas was an attempt to produce a set of maps on a larger scale than had hitherto been issued, which, in addition to the ordinary features of high-class maps, should, by the aid of colour and symbols, convey a large amount of practical, useful information. Before it was published none of the general atlases on sale contained more than the bare geographical outline, with the necessary political colouring. This departure from the beaten track of map-making was so thoroughly appreciated by the public and the press all over the world, that the work soon secured a very large patronage, many thousands of copies being sold. Since that time, however, the development of several countries, important discoveries in others, and alterations of boundaries, brought about by war or treaty, have necessitated thorough revision of all the plates, and the addition of several new ones. The main features of the work are the heights of land, depths of water, and course of oceanic currents on the map of the world and others; the insertion of very large scale maps of all important countries in the world, with plans of their capitals. The locations of British Consuls and Vice-Consuls in foreign countries are given by symbol. Populations of towns are denoted by underlining in various colours. In some cases maps of England or the British Isles on the

same scale as the main map have been inserted, so as to afford comparison of area. The only fault found with the former edition was that some of the letterpress information was of too fugitive a nature. As regards the new plates—the western part of the United States was very inadequately represented in the former issue; nine new plates of this territory have been engraved, so that the whole of the States now appear in nineteen sheets. The rapidity with which discoveries have been made in Equatorial Africa has necessitated new matter, and two new sheets have been engraved. A new map, embodying all the official and other information, of South Africa has been produced, with the latest corrections. The new chart of “Astronomical Geography” at the end of the book will be appreciated, as also the frontispiece, which has been compiled with great care. A perfectly new and copious index has been added. The atlas is deserving of all praise as a book of reference. Some of the maps are very satisfactory, and, being in several sheets, are on a much larger scale, and therefore more easily read than smaller maps. They are generally prefaced by a small key map, and then follow the sheets of the larger one. England has thus six sheets, Scotland three, Ireland four, France, Germany, Austria, Spain, and Italy have each three. India is a splendid map, divided into twelve sheets, whilst the United States have as many as nineteen sheets. The rest of the world is dealt with more or less generously. The city or town maps are numerous, the geological maps beautifully printed, and the sheet of flags and the map of the solar system are very interesting. The amount of valuable matter contained in the various maps (in out-of-the-way corners), by devices of colour and markings, and by tabulated information of a somewhat permanent character, make up a book of a very remarkable character at the modest price charged. Our members will be glad to have their attention called to this new edition, which is valuable alike for the office, the table, the school, and the family. We quite concur with a reviewer of a London paper, who remarks: “This is one of the very best, if not actually the best popular work of its kind; in several particulars it is an improvement on other atlases. The observer is at once struck with the amount of information contained in this book, which is indeed more than an atlas, for it combines many of the uses of the gazetteer, the book of geography, both physical and political, and the statistical record. The volume contains the large number of 155 maps, and yet is not at all unwieldy. Every important country has one general as well as several special maps, the number of these sometimes amounting to twelve. . . . Much more might be written to show the numerous novel points of this useful volume, but this indication of its varied contents must suffice.”

Earth Tremors in Japan.—*Nature* summarises the conclusions of a paper by Professor Milne on earth tremors in Central Japan, which appears in the *Transactions* of the Seismological Society of Japan, as follows: “Professor Milne says that his chief object has been to show the relationship which earth tremors hold to barometrical fluctuations, barometrical gradients, and the wind. He concludes that they are more frequent with a low than a high barometer, but even with the former they may often not be observed; that with a high gradient they are almost always observed, but with a small gradient only seldom; that the stronger the wind the more likely they are to be observed; when there has been a strong wind and no tremors, it has often been a local wind, or one blowing inland from the Pacific Ocean; the recorded earthquakes do not appear to be connected with earth tremors, more than that both are more frequent at the same seasons; and tremors are as severe on the summit of a lofty mountain as on the plains. So far as his observations have hitherto gone in Japan, it appears that the majority of earth tremors are movements produced by the action of the wind upon the surface of the earth, and that these may be often propagated to distant places where wind disturbances have not occurred.—*Manchester Guardian*.”

PROCEEDINGS OF THE SOCIETY

FROM JULY 1st TO DECEMBER 31st, 1888.

SEVENTY-FIFTH MEETING

he Society, held in the Memorial Hall, on Tuesday, July 10th, 1888, at three o'clock in the afternoon; the Rev. S. A. STEINTHAL in the chair.

The CHAIRMAN, in introducing the Rev. John Mackenzie, late of Bechuanaland, said Mr. Mackenzie was extremely well qualified to speak to them of the regions of Austral-Africa. The great extension of gold mining in Bechuanaland made that country a point of great interest to all who were interested in commercial enterprise, for where gold digging began commercial relations were soon established. Apart from the question of commercial enterprise, Austral-Africa deserved their notice on higher grounds. The work of missionaries there had been crowned with success, and Mr. Mackenzie could tell them of the great work that had been done there by men who had left civilisation behind them, and devoted themselves with true philanthropic zeal to raise the nation to a higher and purer life than they had ever known. Whatever form of Christianity the missionaries might carry there, he trusted the blessing of God would rest upon those engaged in such good work.

Mr. MACKENZIE then addressed the members on "Austral-Africa." The address was illustrated with a large map, and was listened to by a large meeting with great attention. (See pp. 201-231.)

In answer to Mr. Hamer, Mr. MACKENZIE said the ostrich was not dying out in Africa, although the use at home of ostrich feathers was falling off.

Another member asked if they might look forward to a confederation of the Free States with the colonies, and if management of their own affairs would not be better than an Imperial administration?

Mr. MACKENZIE said Imperial administration would be the nucleus of such a confederation. There was nothing at present around which they could confederate. But if there were a central government, or Imperial administration, we should have the nucleus of a future confederation. Imperial administration was the first step.

On the motion of the Rev. W. RIGBY MURRAY, seconded by Mr. S. MACFARLANE, and supported by the Secretary, Mr. Mackenzie was warmly thanked for his address.

Mr. MACKENZIE responded, and a hearty vote of thanks to the chairman closed the proceedings.

SEVENTY-SIXTH MEETING

Of the Society at Booth Hall, Blackley, on Saturday, August, 11th, 1888, at 3 o'clock, on the invitation of Mr. W. H. Cook, the present occupier.

This meeting, which was attended by about sixty members of the Society, took the form of a garden party, the members being received by the Rev. S. A. Steinthal, the vice-chairman.

The interesting hall, and the valuable collection of pictures, mostly by the Old Masters, and some very fine wood carvings, were examined with great interest, and the walks in the grounds were very much enjoyed. After tea had been served in the hall a meeting was held, when it was determined by the members present, to make an effort to double the number of members of the Society, and to clear off the debt.

Very hearty thanks were given to Mr. Cook, the tea makers, and the chairman. The rest of the evening was enjoyed by the members in listening to an excellent selection of music, &c. At dusk, the meeting, which had been most enjoyable, closed.

SEVENTY-SEVENTH MEETING

Of the Society, held at the Grand Hotel Britanique, Brussels, on Friday, September, 7th, at 7-30 p.m., Mr. Ralph Bates, J.P., Stalybridge, in the chair.

About thirty members of the Society made an excursion to Antwerp, Brussels, and Waterloo, the journey extending from Wednesday, September 5th, to Monday, September 10th. The party went by way of Grimsby. The M. S. & L. Railway Co. placed saloon carriages at the disposal of the Society, and the saloon of the ss. City of Chester was secured for the party.

Antwerp Cathedral, the Church of St. James, the wonderful and delightful Plantin Museum, and the Commercial Museum, were the principal objects of interest in Antwerp. At Brussels the members called upon Mons. Du Fief, the secretary of the Belgian Royal Geographical Society, who very courteously, with Madame Du Fief, M. Raher, and M. Dickenson, took charge of the party, and enabled them in a short time to explore a large number of very interesting and valuable buildings, streets, &c. The Exhibition, the Palace of Justice, the Churches of St. Gudule and Our Lady of Victories, the Wiertz Museum, the Military School of Cartography, and a number of other places of interest were visited. The members were accommodated at the Grand Hotel Britanique, where they were made exceedingly comfortable, and they were very well pleased with the accommodation.

On the Friday evening a meeting was held in the Saloon. The healths of "The King of the Belgians," "The Queen," "The President of the United States," "The Belgian Royal Geographical Society," "The Manchester Geographical Society," "Mons. and Madame Du Fief," and others were honoured. Mr. Bates, the Secretary, Mr. Ellis Tootil, Mons. du Fief, Mons. Rahir, and others addressed the meeting. A number of American and Scottish ladies and gentlemen were present during the proceedings, and expressed their great pleasure at the unexpected meeting.

The next day the members signed a card, which was left with the Secretary of His Majesty the King for presentation to him. The note read as follows:—

"A number of members of the Manchester Geographical Society being at Brussels desire to leave their most respectful compliments with His Majesty the King of the Belgians, K.G., one of their honoured honorary members."

The note was duly delivered.

Very hearty vote of thanks to Mons. Du Fief, for his great kindness; to General Hennequin, of the Military School of Cartography; to Mons. Castreuil, of the Hotel; Mr. T. Sowerbutts, for the guidance and preparation of a small guide book; to the captain, steward, and crew of the City of Chester; to the officials of the railway company, and to Mr. Bates, the chairman, were passed most cordially and unanimously.

SEVENTY-EIGHTH MEETING

Of the Society, held in the Memorial Hall, on November 9th, 1888, at 7-30 p.m. There was a large gathering, and amongst those present were Commander V. L. Cameron, R.N., C.B., Mrs. Garnett Barboza, Dr. Greenwood (Principal of Owens College), Mr. J. F. Hutton, J.P., F.R.G.S., the Rev. S. A. Steinthal, Mr. J. K. Bythell, the Chevalier Froehlich, K.C.S.I., Mr. Alderman Hopkinson,

J.P., Mr. G. Harker, the Rev. L. C. Casartelli, M.A., Ph.D., Mr. Eli Sowerbutts, F.R.G.S. (Secretary to the Society), and Mr. J. H. Silberbach (Liverpool). A number of maps and other objects of geographical interest were displayed in the hall. An interesting feature of the exhibits was a case devised to illustrate the teaching of Commercial Geography. It consisted of a box divided into little partitions, in each of which was a bottle, containing one or other of the raw products of the country of which the commercial geography was being taught, in this case of Brazil. The idea was that the case should remain at a school for a period during which the teaching of the geography of that region was being undertaken, and that then it should be sent to some other school to be made use of in a similar way. The cases, of which this one was a sample, were the work of Mr. J. H. Silberbach, for the use of the Wirral Diocesan Schools (of which he is one of the managers). The chairman and vice-chairman of the council received the members from 7-30 to 8 o'clock.

The Rev. S. A. STEINTHAL, taking the chair in the absence of Principal Greenwood, who had to leave, said that no doubt the attendance would have been greater but for the simultaneous occurrence that evening of the banquets of the Mayors of Manchester and Salford, and the various meetings on behalf the School Board candidates. A pleasant surprise had been sprung on the Society through the unexpected but very welcome arrival of their first honorary member, Commander V. L. Cameron. In consequence of this the agenda paper would be somewhat departed from in order to allow of their hearing what the Commander had to tell them in respect to what always had been, and always would be, a most interesting subject, viz., the condition of Africa. Several papers of great importance had already been read before the Society, and during the ensuing winter other papers would be read on Africa, as also on other subjects. The Rev. Lawrence Scott, and probably Mr. F. Moir, from East Africa, would be amongst them, and tell them what would prove of great interest and importance. He wished to call the attention of the members to the results of the unobtrusive, patient work of the Victorians, exhibited on the walls in the shape of maps. There was every reason to be proud of that branch of the Society, and the gain in the spread of a knowledge of commercial geography from such industry should not be lightly estimated. Whilst he had the opportunity he would like to suggest the desirability and necessity of enlarging the area of the Society's work and usefulness. He had noticed, with great satisfaction, that the Chairman of the Manchester Chamber of Commerce had, at the quarterly meeting of that body, drawn attention to the good work which the Society was doing, and had recommended the members of the Chamber to support it. He (the speaker) trusted that that recommendation would prove of great service to the Society. It nevertheless behoved every individual member to do his or her best, so that the society might be placed in a position to carry on the work which fell to its share in the community. They were hindered on every hand by the smallness of the means at their disposal, and were consequently unable to perform some of even the most ordinary duties of such a Society. He would now call upon the Commander to address them.

Commander V. L. CAMERON, C.B., D.C.L., R.N., thanked the members for their cordial reception of him. Referring to the Secretary's remarks of his (the Commander's) efforts to start a commercial geographical society, he said: I am sorry to say that fell through, though at one time it looked likely to be successful. Unfortunately I was not rich enough to carry it out, though what I did then took root, inasmuch as the idea of such a society with a museum in London is now being undertaken by the London Chamber of Commerce. It will eventually be carried on by the Imperial Institute, and that will, I think, be a far better course than for it to be in the care of a comparatively

s small society. It is perhaps, therefore, as well that I failed. The question, however with which I am occupying myself at the present time may not come under the head of commercial geography, but it is one of the crying questions of the present day. You are going to hear read to you next month a letter from the great Cardinal Lavigerie, Archbishop of Algiers and Carthage, and Roman Catholic Metropolitan of Africa. His speech on the 31st of July last was, I believe, reported in every London paper and in every paper worthy of note in England, Scotland, and Ireland. He turned to me on the platform and appealed to me to corroborate his words. I could fully corroborate what he had said. But that appeal came home to me. I felt ashamed that for so many years I had paid so little attention to this burning question of slavery, and I set to work at once making inquiries. The only exception that could be taken to Cardinal Lavigerie's statement was that it fell short of the mark, for he did not tell one-tenth of the horrors that are occurring in Central Africa at the present day. Shortly after that speech at Princes' Hall I got a copy of the proceedings of the Royal Geographical Society, and read a paper which was delivered by Lieutenant Wissmann, the German traveller, whose name you all know, and who is, I believe, the only white man who has twice crossed Africa from sea to sea. He tells us what he saw in the region bounded by the Sankúru and Lomami, inhabited by the Bene Ki division of the Basonge. When I was at Tippoo Tib's camp I refused to enter, because, in answer to my inquiries, the people said that no strangers with guns had ever passed through his country, and none should without fighting their way. It was my opinion, an opinion which I always held and continue to hold, that no person has a right, for the simple purposes of exploration, the finding out of the name or the course of a river or the height of a mountain, to take human life. In self-defence I am ready to strike, and if the action I may be taking will be productive of good for my fellow-creatures, I will take it. But it was my uniform practice in crossing Africa never to resort to force unless absolutely compelled to do so. On one or two occasions I was the means of freeing slaves. Four or five years after I had refused to go into the region I have already named, Lieut. Wissmann, with his companions, Dr. Pogge, M. Buslag, and M. le Marinel, a Belgian lieutenant, together with their men, came to it. Lieut. Wissmann thus describes the country: "The natives had lived there for generations, free from war's alarms. The size of the palm trees was evidence of freedom from disturbers. He found the people well fed and happy, and even so far progressed in civilisation that the children had their toys." The picture he draws was, in fact, that of a more contented, happy, and prosperous race than any I had seen or heard of in Africa. Four years afterwards Lieut. Wissmann comes again to that region, this time at the head of a caravan organised by the Congo State. When he comes to look for those smiling villages, those happy people and playful children, he finds a howling waste, the only signs remaining of what he had formerly seen being those immense groves of palm trees, which had been too great for the harriers of the country to cut down. Here and there were remains of huts, blackened and ruined. The place was depopulated. There was no sign of human beings, save, perhaps, the remains of the arm of some poor wretch who had struck out for home and liberty, and had fallen down dead of starvation on coming back to his ill-fated home. Lieut. Wissmann describes that in one day, in the course of a march, extending from 6 a.m. to 2 p.m., he saw ten thousand people. That will give you some idea of the populousness of those regions, which, four years afterwards, he found utterly and entirely depopulated. The reason was not far to seek. They had been visited by the people with the white dresses and the cloths round their heads, as they were called, meaning the tribe of men whom we call, as a whole, Arabs, trading from Zanzibar—really, for the most part, Semitic negroids. They had been once and again. They had burned

and destroyed everything, bringing destruction in their train. They had made their raids on these once smiling and populous regions, and had made them a desert. Going on struggling against starvation, Lieut. Wissmann, with true German determination, still kept on his way, and after a time came to the camp of a man—well, you cannot call him a man—named Sayol. This Sayol was one of the lieutenants of Tippoo Tib. He had been dependent upon Sayol for his progress. Lieut. Wissmann paid him a visit. He had a somewhat stormy interview. If I can judge of this from Lieut. Wissmann's letters, the interview was more than stormy. But the lives of his followers depended upon his making use of that man. He describes his going into Sayol's camp. When he comes there he sees a rough scaffold of beams over the door, and hanging upon it are fifty right hands hewn off from men who had dared to resist being led into slavery. Afterwards, in the afternoon, he hears musketry. The myrmidons of Sayol are shooting down their wretched victims. I myself passed among people whom in the time of Livingstone the Arabs had not dared to molest. These people were civil and kind, although they were in a small way given to cannibalism. Some remnants of tribes which had been almost entirely swept away had become followers of those slavers, and their cannibal tastes had become developed under the diabolical influence of the slavers, who had had victims hunted down in order to furnish them with cannibalistic feasts. That is a thing which is a horror unparalleled in the history of the world. We have heard of Tamerlaine, and how he swept like a destroying avenger in his wild charge, and we know what that man accomplished; but never for a continuance had there been such a stirring up in any country in the world as this slave raiding. Only to-day I heard something which tells us something more, namely, that a missionary on the Congo has seen boat loads of slaves being conveyed into cannibal countries by the Arab slave dealers, to be sold to the cannibals for food, just as you might see train loads of bullocks being sent to Smithfield. These slaves would be sold for ivory and used as food by the cannibal tribes. Cannibalism under ordinary circumstances is bad enough. The native wars only result in comparatively small loss of life. Disease may cause a number of a tribe to lose their lives, but under this new dispensation there seems to be a horrible lust and craving for human flesh arising, such as we have never before heard of. The only parallel to it is to be found in the history of New Caledonia, under the infernal convict system. One youth out of a band who escaped had been during his freedom a cannibal, for he had supported himself on the bodies of his companions. That same youth escaped two or three times, and it was eventually found that he tried to induce a companion to escape with him, with a view to satisfying his own lust for human flesh. This shows that a human being is able to develop that same awful taste for human flesh that we find in the man-eating tiger or lion. All of you who know anything about India know that when a tiger becomes a man-eater it keeps off other prey and seeks out for human beings only. It seems that the same thing may occur among human beings, and this is the very worst feature of the slave trade which is going on in Africa. Cardinal Lavigerie also tells us how the slave dealers each day look at a party of slaves and pick out those which are strong enough to continue the march and murder the others, so that the small stock of water and corn shall not be too quickly exhausted. But even that system of "killing" slaves on the march is not as horrible as what I myself have seen, and what Mr. Moir, who will address you next month, has witnessed. Mr. Moir has, in a paper read before the Royal Geographical Society some two years ago, described how, when a slave-mother with her child has been too weak to carry it along with her load, the child has been torn from her arms by the brutal driver and had its brains dashed out before her eyes. I myself have been a witness to doings of this nature. But the most awful form of cruelty is shown

in this way—instead of killing them outright, allowing them to linger, because they would be only too happy to be killed. Fancy what those slaves must suffer when they would positively rather be put out of their misery straightway. These wretched victims are secured to trees, there to drag out the last few sad hours or days in constrained positions, suffering from the sores and weariness of the march, suffering from thirst and hunger, and doomed to die a lingering death, compared with which impalement or even crucifixion were a mercy, unless some wild beast, more merciful than man, shall come to put an end to their agonies. This is going on in Africa, and though at the present time, from what the Cardinal is telling us, the English and the Germans on the east coast are doing something towards stopping the slave trade, the great difficulty in the way of trade, the great cancer in the heart of Africa, is not touched. Slaves are taken to Morocco and the southern fringes of Algeria, and Tunis. Slaves which before our occupation of Egypt used to be sent into that country are now diverted into Tripoli. In the settlements of Arab traders a number of domestic slaves are required. A trader will settle down with many wives and numerous children, perhaps a dozen of them boys. To each of these little brutes is given his wives, of about his own age, half a dozen each, and besides these he becomes the master of about a dozen young slaves, bigger slaves being required for other domestic offices. These Arab boys may strike and ill-use even grown-up men who are their slaves, without those men daring to lift a finger. Again, in the transportation of ivory, this having become easier, through there not being so much of it to transport, the Arab trader, who is an ivory dealer, finding no ivory, shoots down the able-bodied men of an invaded tribe, and only drives off the women and children. These are subjected to all the brutal passions and brutal ill-usage of the Arab dealers, worse than anything we can imagine. When a village is taken, and that village has no ivory, some few natives are permitted to escape and some are killed, some being made prisoners. Those poor few permitted to escape are told that if they bring in ivory the captives will be released. Then the raiders go away to make a raid on another village. In a short time, such is the natural condition of Africa, those escaped people are able to make a flourishing fruitful village elsewhere. Again the same is played upon them. Then the Arab slave dealers foment the jealousies existing between tribes. In Africa there are numerous small tribes and great jealousies between them, and these the slave dealers keep alive to their own advantage. In regions where one chief holds sway the slave dealers will assist him in collecting tribute from tribes which have not paid up their contributions. I myself have seen brought in a wretched string of some sixty-one or sixty-two captives, only women and children. I have found that, to procure that number, ten villages had been destroyed, and, taking these at their lowest computation, that would represent about fifteen hundred people destroyed or taken prisoners. From these figures it is perfectly easy to arrive at the figures of two millions, which Cardinal Lavigerie gives as the loss of life to Africa every year through the slave trade. A noble officer who had been on both the east and west coasts, and who had travelled a good deal in the states bordering on the Mediterranean, told me that he calculated that they only absorbed one hundred thousand slaves yearly. When you find that for every one slave in a caravan twenty are sacrificed, and when you consider that in the journey to the coast two-thirds are lost, you will easily make up that two millions into four, five, or even six millions a year. I do not believe the Cardinal has exaggerated. I know that countries which, when I crossed Africa, I myself saw, or on the borders of which I passed were populous, have been during the twelve years since I came home entirely depopulated. I know that ten millions of people have been swept away during that time in those parts of Africa alone. Now the Congo Free State has unfortunately had to make treaties. This has been

done with the best intentions. I had the same idea myself years ago to the effect that it would be a politic thing to use the best of the Arabs, and especially Tippoo Tib, about whom my impression is that he is not a man of a bad natural disposition. But unfortunately his success has brought such a following, that were he to attempt to stay their hands, I do not think his life would be worth a day's purchase. From letters from Mr. Ward and from others connected with the *Illustrated London News*, we can see that in territories which the Congo State had once occupied, this awful system of murder and cannibalism is extending. To show you what a contrast the present times afford to the past, when I was travelling in Africa, an Arab was ashamed of his slave-dealings—he was ashamed to let a white man know anything about them—but now he does his work in the light of day and carries it on boldly. Formerly he used to fear that reports of anything of the kind would reach the ears of the Consul at Zanzibar, and that was a check upon him. But now they do it openly in the open day. I may say, in this connection, with regard to the Congo State, that the King of the Belgians started it with the noblest aspirations given to a man in his position, but, unfortunately, circumstances have been too strong for him, and the development of the state has, in some measure, led to an extension of slavery. I have no doubt, that now this is brought home to His Majesty, steps will be taken to patrol the whole course of the Congo to prevent this awful condition of things. My own idea is one which has come in for a great deal of discussion and criticism, and is one which will have to be carefully handled. As the Danube is an international highway in Europe, so the Zambesi is an international highway in Africa. Lord Salisbury has declared that in Parliament, and from what I know of his lordship I believe he intends to stick to his opinion. The bar of the Zambesi has about twenty-two feet of water, and is of great width across. Livingstone's Pioneer went up it in 1859. There is a mischievous country in Africa called Portugal. The Portuguese claim the Shiré, the Nyassa, and all sorts of districts; but they have never done one single thing for any of those districts. The discovery of them was all done by others. Without wishing to detract from the work which has been done by the natives of other countries, it must be allowed that the work which has been done in those regions has been done by Englishmen and Scotchmen through the various missionary and trading societies located there. The only hope for the native populations is, that some firm, settled, form of government shall be introduced, together with a system of patrol by the mouth of the Shiré past Nyassa, and right away up to where we still trust Emin Pasha is still holding up the standard of freedom and liberty, and where we also hope the gallant Stanley has joined him—and in that way right up into the heart of Africa. That will give us a line beyond which no slaves shall pass. In that way we shall cut the slave trade into two halves. And if the Congo State can also patrol the whole length of the Congo River, putting steamers there which can patrol right down it, they can assist in narrowing this system of slavery to a tract of 150 or 200 miles. I am glad to see that Germany has been led to forbid the importation of arms and powder. If those brutes of Arabs do not get superior arms, the natives will thrash them out of the country. Then, if the English, the Germans, and the Congo State say that Portugal shall be taken by the neck and caused to forbid it also, there will be no one else to forbid its being done. Portugal has no right to hold those regions. They say they were discovered by Portugal. They were certainly discovered under Portuguese direction but by the mariners of other nations, principally by the Genoese, all honour to them. But the Portuguese have so misused their opportunities that they have lost all moral claim to exercise any power there, and they must be forced either to so use their sovereignty that it shall conduce to the benefit of Africa,

or be caused to make way for those who can use such power properly. I say that this system of patrol would enable us to hold the watercourse of the Congo—the scene of the very worst of the slavery proceedings of Central Africa, this wholesale murder, crime, and brutality—and thus, in a comparatively short time and at a comparatively small cost, bring it to an end. I have carefully calculated the cost. Both Mr. Gladstone and Lord Salisbury have assured me of their sympathy in what I am trying to do. Lord Salisbury has told me that it is necessary to awaken public opinion. This I am endeavouring to do. I hear very good people, very philanthropic people, saying: “What, slavery in Africa? It does not exist.” And when they have pointed out to them what is occurring, they say: “We never dreamt of that. We thought it had all been stopped years and years ago.” It is quite true that it is necessary to bring home to the hearts of Englishmen the real facts of the case, and I do not say to Englishmen only. There are women and children in Africa suffering, and we are told that their lot is worse than that of the men. I appeal also to the women and children of England. Let every woman in her home, when she looks on her child on her knee or in the cradle, think of those African mothers whose children are torn from their arms when they are struggling under their heavy loads, and have their brains dashed out before their eyes. Let them thank God that they are not subjected to such experiences. But let them also do what they can to prevent those Africans from having to endure such sufferings. I thank you, ladies and gentlemen, very much for the attention you have given me. This question of slavery is one which I have taken up, and, God helping me, I intend to carry it through.

Mrs. GARNETT BARBOZA (Liberia), on being asked to say a few words referring to the slave trade, said she had thought a good deal about that subject, and hoped the English nation would be stirred up to work for its abolition. At one time slavery had existed in Western Africa, but it had not been of so cruel a nature as that of which they had just heard. Thanks to the energy and sympathy of Great Britain, it had been stamped out. She had lived for several years in Liberia. There was there a hopeful and progressive state of affairs in a small way. The country was young, not being yet 50 years old. It was a surprise to her to find that so few people in England knew anything about it. It had been an independent republic since 1847. Its presidents were elected every two years instead of four years as in America. The first President was born in the country and educated there. He was a devoted and true statesman, and a thorough reformer. Liberia was not a wealthy nation, but there was almost unbounded wealth under the soil waiting development. It was largely an agricultural country, coffee being its chief product and chief export. There were also other native products brought from the interior, such as palm kernels, ivory, dyewoods, &c. Liberia was a Christian nation, and based its various institutions on the Christian faith. Its different religious institutions had become self-supporting, and were sending out missions among the native tribes. The natives were coming to the belief that educated wives and mothers were wanted. For eight years she herself had been working at one particular idea, which was the development of the school system for the training of girls, in order to secure a better standard of education in family life. She had the recognition of the Government of Liberia, and had been in America trying to interest the people there, as also in England. She had received much kindness in Manchester. Mrs. Barboza concluded by saying that she hoped to be back in Liberia by Christmas, which season, she might say, was always kept up in the same manner as in England.

Mr. J. F. HUTTON, in moving a vote of thanks to Commander Cameron and Mrs. Garnett Barboza for their addresses, said that he felt sure that it was quite within the province of the Society to take up the question of slavery, although it might not

come under the head of commercial geography. It might be asked what might have been the condition of our commerce with Africa but for the great curse of slavery which had existed there for two centuries. There would be those present who would remember the times when slavery existed as much on the west coast as to-day on the east coast. There was, for instance, Sierra Leone and Shêba, where there existed one of the greatest slave institutions. That was destroyed by the action of the British Government. There was Lagos, now a most flourishing possession, which was formerly a perfect den or hornet's nest of the vilest slavery carried on with the Brazils. We English people could not hold ourselves altogether free from blame, seeing that we were amongst those European nations who took part in the extension of slavery by transporting human beings from Africa to our own possessions in the West Indies. But if that was the case, we were the first European country to become alive to the evils suffered by those people who were so harried and subjected to the terrible results of the slave traffic. Happily England had again taken the lead in the suppression of the traffic, and he was quite sure that England would never let it drop while it lasted. We had little idea of the number of lives annually sacrificed during the last two centuries by the capture of these poor human beings who were fellow-creatures with ourselves. It was time that England awoke to the importance of the question. Manchester, as the centre of the great industries of Lancashire, was seeking for new markets for its products. And how could they hope to get new markets if they saw those people who should be their customers annually destroyed in such immense numbers? Stanley had told them that unless one had been into the interior of Africa it would be impossible for one to form an idea of the millions of people living totally apart from civilization as we understood it, totally unknown to Europeans, and pursuing a life of peace, industry, and, in a sense, of civilization of which nothing was known here. He (Mr. Hutton) hoped that the Society would not show itself entirely dead on this question of Africa. The development of our commerce with the tribes in the interior was a matter of the greatest importance. The Society was immensely indebted to Commander Cameron for his address. It was to be hoped that the matter would not be allowed to rest until slave-raiding had become a thing of the past.

Mr. J. H. SILVERBACH (Liverpool), seconded the vote of thanks, and said he had come to that meeting to say a few words with regard to commercial geography, and did not expect to speak on the question of slavery. He had been much moved by what he had heard, and now he would be glad to say a word on the question of commercial geographical education. As a child he had always been fond of ships, and in his youth he had spent much time going round the docks and reading geographical works. When older he became a school manager, and came to see that the current system of teaching geography was not exactly one calculated to attract the attention of the pupils. He was struck with the idea that when a class was being taught geography the master should have specimens of the various products which came from each country to place in the hands of the pupils, so that they could see exactly what did come. Thus, seeing the map of the particular country, and the articles coming from that country, the pupils would carry away with them more real knowledge of the subject than would be the case were they merely taught from a book. It was dealing with the matter through the eye. There were in connection with the Society of which he was a member some thirty cases, either completed or in course of completion. These cases were lent out to a school for a month at a time, and then passed on to another school. Each case carried with it a description of the articles it contained, and in certain technical cases descriptions were given of the method of preparation and manufacture of the articles. He hoped that the system would be taken up widely.

The Chairman put the vote of thanks to the meeting, and it was carried unanimously. The Commander acknowledged the vote.

Councillor SHERRATT asked what was being done in respect to raising the numbers of the members and associates of the Society. The Society had been founded three years. Mr. Hutton had ably assisted in its early formation, and other gentlemen, among them the two Bishops, had given much assistance. The membership now stood at about 530. It seemed to him (the speaker) that advertising and circularising people would have no particular effect in increasing the membership and placing the Society on a sounder footing. The only reliance was in the personal canvassing by members amongst their friends, and he hoped this would be systematically resorted to.

Mr. J. F. HUTTON, after referring to the efforts which had been made in years gone by to form a Society, said that the present Society was now thoroughly established, with an excellent and energetic Secretary who had determined that it should not be given up. The Society gave a good deal of valuable information, and no one could say that good value was not given for the money. He himself would start the idea of getting new members by holding himself responsible for the subscriptions of ten new members* whom he would try to induce to join the Society. It was for the Society to be able to say in times to come that they had been very serviceable to the community.

Mr. GEORGE HARKER promised to do his utmost to increase the membership of the Society, so that it might occupy the proud position which its energetic secretary was aiming at for it. He (the speaker) thought it was the function of the Society to find out new markets for their commerce. There was a good deal of complaining of this want of fresh outlets for their manufactures, and the society should no doubt do something towards meeting this requirement.

After some further discussion, it was moved by Mr. J. F. HUTTON, and seconded by Mr. GEORGE HARKER, "That the members of the Society engage to do their utmost to double the list of members during the ensuing three months." This was carried unanimously.

Votes of thanks to the Chairman and Mr. Silberbach, and to Miss Hilda Hughes, Messrs. G. Broadfield and A. Hughes, who had provided the music which added to the enjoyment of the evening, brought a very happy meeting to a close.

Refreshments were served to the members during the evening.

SEVENTY-NINTH MEETING

Of the Society, held in the Library, Wednesday, November 21st, 1888, at 7-30 p.m., Mr. Councillor BOSDIN T. LEECH in the chair.

Minutes of meetings June 13th (72), 23rd (73), 30th (74), July 10th (75), August 11th (76), September 7th (77), and November 9th (78), were read and approved.

The following presentations were announced:—

Washington, U.S.A. Part Report of War Office, 1887. By the War Secretary, U.S.A., through Major-General Grealey.

Wellington, N.Z. Map of Chatham Islands.

Map of Kermadec Islands.

Map of Central Thermal Springs of North Island, N.Z.

Map of Aorangi South Island, N.Z.

Report of Survey Department, 1887-8. By General Survey Office, N.Z.

* Mr. Hutton has fulfilled his promise.

London. Twenty Reports on Austral Africa. By Rev. J. Mackenzie.

Report of Egypt Exploration Fund, 1887. By the Society.

Brussels. The Kassai, &c. The Institute of Geography, Brussels, by favour of the Congo Free State.

Rome. Statistical Annual, 1887—Agriculture.

” ” —Commerce.

” ” —Penal.

” ” —Emigration.

By Signor Luigi Bodio.

Antwerp. Catalogue Musée Commerciale. By the Brazilian Consul at Antwerp.

Boulogne. The Unification of the Calendar, 1888. Rev. L. C. Casartelli, M.A., Ph.D.

Paraguay. Statistical Abstract. Mr. J. Parlane, J.P.

Cambridge. Elementary Commercial Geography. By Dr. Mill. The Syndic.

Glasson Dock. Kludonometric Tide Tables, 1888.

The Life of a Wave.

Atmospheric Pressure on a Tidal Wave. By W. N. Greenwood. The Author.

Brussels. Abrégé de Géographie. 2nd Course.

Elements de ” 1st, 2nd, and 3rd Degree.

Précis de Géographie. Vol. I. and II. By Professor J. Du Fief. The Author.

Indo-Burma-China Railway Connections. The Manager Standard Life Insurance Company.

The election of the following members by the Council was announced :—

ORDINARY : Messrs. James Barker, Gilbert Beith, W. A. Beith, G. T. Bowes, Thomas Deakin, J. M. Dore, Robert Gudgeon, A. Heine, John Holland, Samuel Holland, John Howarth, John Irlam, Robert Kay, F. H. Kolligs, J. Tetlow Lewis, Joseph Long, J. W. Lloyd, William McClymont, John Meggatt, R. N. Michaelis, John Millers, Richard Millers, James M. Molesworth, C.E., James A. Newbold, B.A., John Noton, Benjamin O'Connor, J. R. Pascoe, Rev. W. H. Penney, M.A., J. Pritchard, Fritz Reiss, Edward Ross, J. Gibbons Sankey, B.A., George Singleton, J. Owen Stock, T. Knox-Taylor, Thomas A. Walker, Rev. H. Waller, M.A., Robert Watson, Philip Whyman, Miss Sidebottom and Miss Watts.

ASSOCIATE : C. H. Allen, Jas. Booker, S. Hamill Brook, Louis Bubier, Humphrey Dyson, T. B. Elce, Bernard Gordon, J. R. Lancashire, T. H. Law, Councillor J. Rawcliffe, William Ross, Henry R. Slatter, Rev. Thos. Wakefield, A. S. Willing.

CORRESPONDING : Prof. J. du Fief, Brussels.

A paper, communicated by the Hon. E. B. Gudgeon, Consul-General for Liberia (see pages 233) was read by the Secretary ; Discussion followed the paper, the Chairman, Messrs. Blake, Phillips, and others taking part therein.

A paper, communicated by W. G. Black, M.R.S.E., F.R.M.S., was read on the “ Meteorology of the Suez Station before and after the cutting of the Suez Canal.” (See pages 249.)

A paper, translated by the Rev. L. C. Casartelli, M.A., Ph.D., from the Berlin *Germania*, Oct. 1888, on “ The Future of the Railway in Asia,” was read ; and reference was made to an article in *Science* (with map) on the subject. (See pages 256.)

Some of the journals and other papers sent from abroad were brought to the particular notice of the members, and the Geographical and Technical boxes of Mr. Silberbach, were on view.

The deaths of Mr. Thomas Jarratt and Mr. F. E. Ogden having been announced, the Secretary was requested to convey to Mrs. Jarratt and Mr. S. Ogden their heartfelt sympathy and condolence in their loss.

Hearty votes of thanks to the Hon. E. B. Gudgeon, Dr. Black, and the Rev. L. C. Casartelli, for their papers, and to the chairman for presiding, having been passed, the meeting closed.

THIRD ANNUAL MEETING

Of the Society, held in the Library, on Friday, November 2nd, 1888, at 3 o'clock p.m., the Rev. S. A. STEINTHAL in the chair.

The notice convening the meeting having been read, the minutes of the Second Annual Meeting were read and approved.

The following report of the Council to the members and the Annual Balance Sheet, which had been duly audited, were then read. (For Report and Balance Sheet see pages 196-200.)

Mr. Alderman HOPKINSON moved, "That the Report and Balance Sheet be approved." Mr. Councillor SHERRATT seconded the motion, which was carried unanimously.

Mr. IRLAM moved, and Mr. DENTITH seconded, the following resolution, which was carried unanimously:—

"That the thanks of the Society are due and are hereby tendered to the Council, the Officers, and the Auditors of the Society for their valuable services."

The nominations for election to the Council were then read, whereupon Mr. Alderman HOPKINSON moved, Mr. JOB IRLAM seconded, and the motion was carried—

"That the following constitute the Council and Officers of the Society for the ensuing term:—

PRESIDENT.

His Grace the DUKE OF DEVONSHIRE, K.G., Chancellor of the Victoria University

VICE-PRESIDENTS.

The Right Hon. the Earl of Derby, K.G.	Sir Henry E. Roscoe, LL.D., F.R.S., M.P.
The Right Hon. Lord Egerton of Tatton	The Hon. Algernon Egerton, J.P.
The Right Hon. Lord Winmarleigh	Mr. B. Armitage, J.P.
The Right Hon. and Rev. the Earl of Mulgrave	Mr. Jacob Bright, M.P.
Lord Frederic S. Hamilton	Professor W. Boyd Dawkins, M.A., F.R.S.
The Right Rev. the Lord Bishop of Manchester	Mr. F. W. Grafton, J.P.
The Right Rev. the Lord Bishop of Salford	Mr. Edward Hardcastle, M.P.
His Worship the Mayor of Manchester	Mr. Oliver Heywood, J.P., High Sheriff of Lancashire
His Worship the Mayor of Salford	Mr. H. H. Howorth, M.P.
His Worship the Mayor of Stockport	Mr. Isaac Hoyle, M.P.
The Vice-Chancellor of the Victoria University	Mr. J. F. Hutton, J.P., F.R.G.S., Consul for Belgium
The Principal of Owens College, Chairman of the Council	Mr. J. Thewlis Johnson
The Very Rev. the Dean of Manchester	Mr. Henry Lee, J.P.
The Very Rev. Monsignor Gadd.	Mr. W. Mather, J.P.
The Right Hon. Sir James Fergusson, Bart., C.I.E., M.P.	Mr. Samuel Ogden, J.P.
The Right Hon. A. J. Balfour, M.P.	Mr. Richard Peacock, M.P.
Sir W. H. Houldsworth, Bart., M.P.	Mr. H. J. Roby, M.A.
Sir Humphrey F. De Trafford, Bart.	Councillor Henry Samson, J.P.
Sir J. C. Lee, J.P.	Mr. C. E. Schwann, M.P.
Sir J. J. Harwood, J.P.	Mr. John Slagg, M.P.
	The Rev. S. A. Steintal, Vice-Chairman of the Council

TRUSTEES.

Mr. Alderman P. Goldschmidt, J.P.	
Mr. Alderman C. Makinson, J.P.	Mr. James Jardine, J.P.

TREASURER.

Mr. T. R. Wilkinson, The Polygon, Ardwick

COUNCIL.

Mr. E. J. Broadfield	Mrs. Rosden T. Leech
Mr. Frederick Burton	Mr. George Lord, J.P.
Rev. L. C. Casartelli, M.A., Ph.D.	Mr. J. H. Nodal
Professor T. H. Core, M.A.	Mr. James Parlance, J.P.
Miss Day, Girls' High School	Mr. Fritz Reiss
Mr. S. Dill, M.A.	Mrs. H. J. Roby
Chevalier Robert Froehlich, Vice-Consul for Italy	Mons. Leon Gme. Le Roux, Vice-Consul for France
Mr. George Harker	Councillor W. Sherratt
Mr. Elijah Helm	Mr. Mark Stirrup, F.G.S., Hon. Sec. Man- chester Geological Society
Mr. A. Hughes, M.A., Grammar School	Mr. Thomas Swanwick
Mr. Sydney Keymer	

HONORARY SECRETARIES.

Mr. A. R. Gallé, 29, Dale Street	Mr. F. Zimmern, Hardman Street
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SECRETARY.

Eli Sowerbutts, F.R.G.S., 44, Brown Street, Manchester

A very hearty vote of thanks to the chairman closed the proceedings.

EIGHTIETH MEETING

Of the Society, held in the Memorial Hall, Manchester, Wednesday evening, December 5th, 1888, at eight o'clock, p.m. Mr. J. F. HUTTON, J.P., F.R.G.S., presided, and there was an exceptionally large attendance. Amongst those present were the Bishop of Salford, Sir James Marshall, K.C.M.G. (late Chief Justice of the Niger district and formerly of the Gold Coast), Commander V. L. Cameron, C.B., D.C.L., R.N., the Rev. Lawrence Scott, The Rev. S. A. Steinthal, Mr. R. Cobden Phillips (late of Banana), and others.

The SECRETARY (Mr. E. Sowerbutts) stated that since the last meeting 37 new members had been added to the Society.

Letters of apology for inability to attend the meeting were read from Mr. F. Moir and Mr. A. B. Wylde (Suakim). Mr. Moir wrote: "Your favour of 27th has followed me here. I fully intended to have been present at the meeting next Wednesday, but for the past two days my arm has been decidedly worse, the wound having become seriously enlarged and giving me much pain, so that I am advised not to undertake the journey to Manchester under the circumstances."

Mr. Wylde wrote as follows: "I leave this day week, and hope to arrive at Suakim in time to prevent the tribesmen throwing in their lot with the dervishes, which I am afraid they will do, and then everything will have to be done over again. You know how exact I have been in every detail as to what would take place if the military policy was adhered to. No matter if the dervishes are defeated, we are not one iota further towards a settlement, and without a policy nothing can be done. The policy I want to see carried out need go no further than this. Tell the tribesmen that they are never to be regoverned by Egypt, and that they shall be allowed to trade, and they will not allow the dervishes to molest them. Geography and commerce go hand in hand. Geographical societies are the merchants' intelligence

departments, and your Society should tell your merchant members who belong to the Chamber of Commerce to insist on all the Manchester Members of Parliament taking up the Soudan question and insist on trade being tried at Suakim and the coast ports. The whole military policy might be a comedy if it were not what it is—namely, a ghastly tragedy. The mendacious inexactitudes that are published as facts by the military party lead the public to believe that trade has been tried. The tribesmen want to buy and sell; this they have to do across Egyptian bayonets and under police supervision. The Manchester merchant would not be able to do much if a rural English population were under the same supervision. I fail to see what right the military party have to stop trade; but this I do know, if they allowed trade to go on, 'their occupation would be gone,' with its accompanying patronage. The public should insist that not an honour is given them as long as they kill; but that the order basket was open to them to take K.C.B.'s and C.M.G.'s from as long as they pursue a humane policy."

The CHAIRMAN said that, in respect to the question of Central Africa and slavery, there were very great and grievous difficulties in the way of bringing about the changes that were desired. It was a question which was more than that of mere consideration; it was nothing less than the duty of every man who desired the promotion of civilisation among his fellow-beings to see that the matter of slavery was grappled with without delay. It was a particularly important matter if one had regard to the necessity of opening up trade with those vast populations of the interior of Africa. Many people had visited Africa for purposes of sport, but Mr. Scott, whom he was introducing to them, had gone out for a holiday trip, but that trip was undertaken with a view to benefitting his fellow-beings out there. Fifty years ago Great Britain had undertaken the great work of suppressing the slave trade, and something like 50 millions sterling had been expended during that half-century to carry on that work. What had been the results? Force had not proved a remedy in Africa. Force had merely diverted the currents of the trade, not extirpated the trade itself. There were thousands of miles of coast to be blockaded, but force exhibited in that way would never bring to an end the abominable traffic in slaves. It would be a pertinent question to ask how much had been spent in Africa to open up commerce as compared with the amount spent in attempts to suppress slavery. forcible measures, to a large extent, meant the extirpation of possible customers. To his mind there seemed to be three points, viz., the geographical question of Africa; (2) the ethnological. There were hundreds and thousands of tribes in different parts of Africa speaking hundreds of languages and dialects; and, thirdly, there was the religious question, and this last seemed to him to be the greatest difficulty of all, because on the various religious creeds of the inhabitants of Africa were based many of their habits and traditions. When the pioneers of the anti-slavery movement, 50 years ago, went to the Khedive of Egypt to ask for his assistance, that enlightened sovereign, wishful as he was to do everything in his power to favour the poor African, told the British minister that it was to Constantinople that he must address himself, and that there only could a stroke be made at the root of the evil. Slavery, in fact, was part of the religion of Mahometanism. The Chairman concluded by saying that it was desirable that Lancashire should be able to look forward to having commerce opened up right away to the very centre of Africa, as from this would result trade with enormous populations existing there, and which had existed there from time immemorial.

The address to the Society, on "A Holiday in East Africa," was then delivered by the Rev. LAWRENCE SCOTT, of Denton. (See pages 262.)

His Lordship The BISHOP OF SALFORD said that he would naturally wish to express his own feelings of gratitude to Mr. Scott for his extremely interesting paper, and for the views—so solid, straightforward, and sensible—which he had enunciated. But his office that night was a very simple one, and would consist of the reading of a letter which he had received on behalf of the Manchester Geographical Society from Cardinal Lavigerie. It was, of course, evident to everyone that a magnificent mission of charity had been assigned by Providence in these later days to the whole of Christendom, when science, energy, and philanthropy had taken perhaps a wider sphere of action than in any former century. For the work they had before them was nothing less than to save from destruction a whole continent. The Mahometan Arabs, though only some 500 or 600 in number, were able, so they were informed, to domineer over nearly the whole of Central Africa. The loss of life accruing from the slave trade from the interior amounted to nearly one million souls per annum. At that rate—and it was feared the rate would be an increasing one, unless the hand of Christendom intervened—the population of that part of Africa must die out and be destroyed within an ascertainable number of years. Travellers and explorers, men of science, and men devoted to the propagation of religion, had entered into all parts of Africa in these later years, and they had brought back to Europe the horrible facts which had curdled men's blood as they had heard them recounted. Those facts becoming generally known, they had touched, among other hearts, the heart of Pope Leo XIII., and, using his exceptional position among the nations of Christendom, he had made use of his influence to call upon all Christendom to rise together and to devise plans by means of science, philanthropy, and by moral means, whereby that horrible traffic in human lives might be put down. And in an Encyclical Letter which he published at the beginning of last May the Holy Father had made a public appeal, as he said, “to all persons occupying positions of authority in Empires and States, to all who loved freedom and desired that the rights of nations and of humanity should be held sacred”—he had called upon all of those to engage together, to repress, forbid, and put an end to the most base and wicked traffic in human beings. His great appeal had been to the devotedness of missionaries; his appeal was to the use of moral power, to all those who could exercise any influence. In that letter he repeated the declaration put forward years ago by one of his predecessors, in saying that the Negroes had a threefold right: (1) The right to be masters of their own persons; (2) To live together under their own laws; and (3) To hold property for themselves. Those three propositions, he (the speaker) felt assured, would meet with the heartiest sympathy and support of the English people wherever they were made known. The Holy Father having published that letter, and made known his feelings, did not wish to stand content with an expression of such feelings, but summoned to his side an experienced missionary, a prelate thoroughly to be trusted, His Eminence Cardinal Lavigerie, and to him entrusted to go throughout Europe as his representative, to make known to the countries of Europe the state of misery and wretched degradation in which the poor African was found; to appeal to the hearts and to the consciences of Christendom, so that they might be united together if only on that one enterprise of putting down slavery and restoring to liberty the African, who for so many centuries had been deprived of it. He had written to Cardinal Lavigerie at the request of his fellow-members of the Manchester Geographical Society to acquaint him with their intention to hold that meeting and to invite his presence among them, assuring him that he would be nowhere more heartily welcomed than in the city of Manchester. The Cardinal, however, being detained in Rome, had not been able to accept the invitation, but, taking the opportunity of his being there, would make known to the Holy Father the fact of that meeting being held. His Holiness had sent them his blessing, which he (the speaker) would pronounce upon the meeting subsequently to his reading the letter he had received from Cardinal Lavigerie.

His Lordship then read to the meeting the letter from Cardinal Lavigerie, as follows:—
*Letter addressed to the Manchester Geographical Society by His Eminence Cardinal
 Lavigerie, Archbishop of Carthage and Algiers.*

[TRANSLATION.]

Rome, 22nd Nov., 1838.

My Lord,—I cannot but be delighted with your Lordship's idea of introducing to Manchester the Anti-Slavery Crusade of our Holy Father Pope Leo XIII. I have already had the pleasure of preaching in London, and I can truly say that nowhere has this great ideal of humanity and justice found so benevolent and, I venture to say, so enthusiastic a reception.

England, indeed, recognised in this new enterprise her most glorious souvenirs. It must never be forgotten that it was she who, at the close of the last century and the first half of the present, had the chief share in the work of abolishing Colonial Slavery in the West Indies. She it was who by the burning eloquence of Buxton, Wilberforce, and so many others, excited the indignation of the civilised world against such barbarities. She it was who by her statesmen decided Europe, first at the Congress of Vienna, afterwards at the Conference of Verona, to take in hand resolutely the cause of the poor blacks, and to treat as pirates those who, in the midst of so many scenes of carnage, did not blush to carry away entire populations from their native lands, from their families and their liberties, in order to transport them in the holds of their horrible vessels, into the plantations and beneath the lash of the planters of America. She it was, in fine, who often undertook to carry out the decisions of Europe, and who often went so far as to constrain foreign nations to execute international conventions.

And nowadays it is still she who, by means of Livingstone and her other explorers, calls the attention of Christian nations to the revival in the interior of Africa, and on the East Coast, of the slave trade—no longer, indeed, by planters, but by the Mussulmans of Asia and Northern Africa. Without doubt the African trade had never been interrupted; but after the great victory won over colonial slavery, it had been, so to say, forgotten. The intrepid courage, the devotedness, the high probity and truthfulness of Livingstone—his repeated testimony to this dreadful scourge—his latest wishes, immortalised by the English people by inscribing them on his tomb in Westminster Abbey—and after Livingstone's time, the testimony of so many others—Burton, Speke, Cameron, &c.,—have produced on the entire world the same impression as was created by those anti-slavery agitators who, fifty years ago, abolished the colonial slave trade. Missionaries have joined their voices to those of explorers and philanthropists. Our Catholic missionaries from Algiers who, little by little, have spread themselves with heroic courage over the Mussulman regions of the Soudan and the tablelands of the great lakes, very soon made known to me personally the horrors which they had witnessed.

The sovereign Pontiff could not fail to denounce these horrors to the entire world. Hence, in the audience accorded to the African pilgrimage at the end of last May, he uttered that strenuous appeal which has found so powerful an echo in England without distinction of political opinion or even religious confession.

How much I should like, my Lord, to accept your invitation and to repeat once more, in Manchester, the appeal of Leo XIII. It is a real disappointment to me to be so far from your Lordship, on so important an occasion, but being in Rome I desired to at least make known to the Holy Father your noble intention, and to engage his sympathy for all the members of the meeting. He most gladly acceded to my wishes, and charges you to formally bestow in his name the Apostolic blessing upon all those who partake in this great work. He blesses them for their generous idea—those who belong to the Catholic Church, because they honour their religion by this act of faith and charity; those who do not, in order that He who is the Infinite Charity may, in return for their charity, pour upon them the most abundant graces of light and unity.

I could prolong this letter by giving your Lordship interesting details of the constitution and character of the anti-slavery work, but I prefer to forward several printed documents. You will be able to select from them, better than I could, what is most appropriate to your meeting.

Your Lordship's obedient and devoted brother in Our Lord,

(Signed) + Ch. Cardinal LAVIGERIE,
 Archbishop of Carthage and Algiers.

His Lordship then pronounced the blessing.

The Rev. S. A. STEINTHAL said that all present would admire the broad and catholic spirit which breathed through the letter from His Eminence Cardinal Lavigerie. Speaking for himself, he was glad that the sympathies of His Holiness Pope Leo XIII. were enlisted, as they gave encouragement to persevere in the work. He thought that the meeting should express in some formal way their acknowledgment of the help which had been given to the great movement by the message to which they had listened. He had hurriedly drafted a resolution which he would venture to put before them in the hope that they would accept it, and that, when properly engrossed, it might be forwarded to His Holiness. The work that had to be done in clearing away the slave trade could not be exaggerated. The Cardinal had mentioned the fact of a million of lives being sacrificed year by year, and even that number was by those competent to form an opinion considered an under-estimate. Be that as it might, who could conceive what was implied by the awful torture which accompanied that sacrifice, or who could tell what were the sufferings which so many of our fellow-creatures were enduring in consequence of that cursed traffic in human flesh? There was no sacrifice which could be made which would be too great if directed to stop that crying evil. Slavery as a system must be stopped; that alone seemed to promise the prospect of a reform in Africa. Mahometanism had been praised by many from whose mouths such praise sounded strange, but it was only by the rescue of the Africans from the evils which Mahometanism brought upon them that progress in that great Continent could be made. Parts of the interior of Africa had been described by travellers, and that night by Mr. Scott, as a real paradise for human beings to live in, and yet such places had been laid waste by the slave trader. At the present time that beautiful extent of land running up from the Shiré river, along Nyassa, lay in danger of being in the same way turned into ruin. Great gratitude, therefore, was due to be shown to those who had the power to lift the great question of slavery far above all political considerations or sectarian rivalries. His Holiness had shown by his practical deeds how earnest he was in the work. There was hardly one of the great anti-slavery societies in Europe which had not been liberally helped by his purse. The British and Foreign Anti-Slavery Society had already received the sum of several thousand pounds from His Holiness as a contribution to their funds for the work. Mr. Steintal concluded by reading the following resolution: "That the Manchester Geographical Society, having heard the letter of Cardinal Lavigerie, expresses its deep sense of gratitude to His Holiness, Pope Leo XIII., for having taken the initiative in the beneficent work of the anti-slavery crusade, and in having committed its advocacy to so illustrious and eminent a prelate as Cardinal Lavigerie, and for having contributed with such generosity to the societies working in the cause throughout all Europe. That a copy of this resolution be properly drafted and forwarded in the name of the Manchester Geographical Society to His Holiness Pope Leo XIII."

Mr. MARK STIRRUP, F.G.S., seconded the resolution.

Commander V. L. CAMERON, V.C., D.C.L., R.N., supported the resolution. He said that the one great duty of all Christian men was to abolish slavery. He differed from the Cardinal's figures, inasmuch as he estimated that the loss of life in the African continent through the slave trade was not less than two millions per annum. As to whether El Islam had done more for the Negro than Christianity had, ignorance of the subject prompted any belief there might exist as to the superiority of the former. Philosophically speaking El Islam was a very fine religion, but it certainly was not as good as Christianity. El Islam taught that its followers must not enslave believers, so they preyed upon those helpless people of Africa. He did not think that there were 500 people of pure negro blood in Africa who were Mahometans. In relation to the conversion of the Africans to Christianity it should not be expected

that any missionary, be he English, French, or of other nationality, should at once attempt to raise the people to his own level or state of civilisation. Slow and patient work had to be carried on before an equal stage could be reached. Occasionally, as in the case of Bishop Crowther, a convert might be found who jumped at once from the hold of the slave-ship into being brought forward and educated as a Christian minister. A missionary should not be disappointed because he saw no immediate results; one man might sow and another reap the harvest in after years. He hoped that, out of the struggle which had been going on in the Nyassa district, peace and security for the people living on the shore of the lake might ensue. But the disturbances there were not the greatest plague-sore, as Lieutenant Wissmann had called it, of Central Africa. Commander Cameron then went on to detail some experiences met with by Lieutenant Wissmann, which he himself could corroborate from his own knowledge. In conclusion, he said that at Constantinople lay the root of the monstrous evil which was going on in Africa, and it was there, to Constantinople, that attention should be turned by every Christian nation wishful to bring the abominable traffic in slaves to an end.

Sir JAMES MARSHALL, K.C.M.G., late Chief Justice of the Niger district, and formerly of the Gold Coast, said that his excuse for volunteering to say a few words was based on the fact of his having for some ten years been stationed on the West Coast of Africa, where he had seen a great deal of the working of the slave trade. He wished to draw the attention of everyone present to the fact that the slave question, was wider than that aspect of it which had principally been brought before their notice that evening. There was a side of the question which had nothing to do with the Arabs. There was a slavery produced by negro tribes enslaving their neighbours and treating them with all the savage cruelty it was possible to conceive. It was a big work which they had got before them, and it was a noble work, but it was well that they should look it in the face, as it would not by any means be carried through in a hurry, but would take a very long time to do. In his opinion it would be carried through only by each Government using its influence within those parts in which it could exercise moral, and if necessary, physical force, to put down what it knew to be cruelties or conduct contrary to nature and to humanity. Although the slave trade was put down, and no more slaves were nowadays carried off from the West Coast of Africa to the West Indies, he was sorry to say that there were countries like Ashantee and Dahomey, and others of that kind, where slavery was carried on in the most cruel fashion possible. And not only that, but every tribe of Negroes which went to war with other tribes sought to enslave their opponents. They did not know better than to do so, for it had been a custom with them from time immemorial, a custom bound up in their laws and in their religion, and they thought it right and honourable to do such things. It was the pride of a despot to be the ruler of Negro tribes, and so he would go out to make war against the neighbouring tribes, and if successful, cruelties and human sacrifices followed the victors. Such tribes had a notion which is shared by the Red Indian tribes, that there was a future state, and that when one of their rulers or chief men died he remained in such future state in the same condition as in this world. Thus a free man remained a free man, a slave a slave, and on the death of such chief, free man, or slave, it was necessary that they should have fitting company in the other world. Consequently it was not merely a matter of cruelty, but was an article of their devilish religion that made them believe and act out their belief in killing slaves in order to send them to the other world to serve their rulers there. That kind of thing was going on in all Western Africa to that day, except where the British Government or other Government was putting an end to it. He had been glad to hear the views taken by the Chairman and by Mr. Scott

in his paper, that the work of reform was one to be undertaken and carried on very gradually. They would be surprised to hear that when he went out to the Gold Coast in 1873 it came amongst his duties to regulate slavery. All that was done at that time was to try and put down any cruelty and anything in the way of human sacrifices. Every slave had the right of appeal to him against cruel treatment, but at the same time, he as judge was bound by his commission and by the English laws of the country "to chase or to order slaves to be chased, and be brought back should they run away." Any interferences with time-honoured practices such as slavery had to be very gradually brought about, and good results could only come from a due recognition of that. At Coomassie, in the course of the war with Ashantee, the British army had found most horrible human sacrifices and cruelties of every kind in full swing, but though Coomassie was taken, very little of a lasting character in the way of reform of such doings was brought about, and things now went on much as they did before. The countries in that region were much broken up, not being under one despot. The tribes had rivalries and were continually fighting against each other. Lagos had been taken possession of by the British Government and there slavery had been put down. It was a fine thing to see their factories, their workmen, and many of the natives learning to be traders and merchants. It was a flourishing town, and had its schools attended by hundreds of children. There was a Government inspector, who visited them from Sierra Leone to hold examinations, and those children could pass as good an examination as many in this country. It was necessary to get a moral hold of a country. But between Lagos and the Gold Coast there was one of the most horrible countries in existence, Dahomey. Every year to this day the king of Dahomey went out with his army, mostly composed of women, amazons, first in one direction and then in another, within easy distance of French, German, and English authorities, and he laid hold of all the tribes he could get and took them with him back into slavery. Such as could not be sold or disposed of were put to death in the most horrible manner at their annual customs, in order to send them, as their belief went, to servitude under their rulers in the other world. From what he had said it would be understood that the work of putting down slavery was not a mere question of action against the Arab raiders. He thought that the civilised Governments of Europe, and especially that of England, should do more against countries like Dahomey. There need be no hurt done to the people, but there should be an end put to such cruelties. In 1875 preparations were made to bring that about. The King of Dahomey had been very cruel to an Englishman. Commander Hewitt blockaded the place, and everything was got in readiness to proceed up to Abomey to put an end to the king's despotism. But when everything was ready orders were received that everything was to be stopped, and consequently the blockade and all further proceedings had to be abandoned. What was the result? The king imagined that his fetish had got the better of the English, and so we had been laughed at ever since. He (the speaker) had had the honour of getting a reprimand for being so warlike. Near Lagos there had been a smaller potentate doing a similar thing. His human sacrifices had been so dreadful that the Lagos Government thought something should be done. He was sent up with a lot of soldiers, who were unarmed, though made up to look very powerful. He presented the potentate with a letter intimating that the British Government would not allow such doings. He came away, nothing was done, and the sacrifices, &c., had been carried on ever since. Further, any chance that the British Government had had of civilising that territory had departed from them, seeing that the French had taken possession of that region, and France, as a nation, was not in the least particular about slavery. France spread its influence by giving it out that it did not interfere with slavery, as the English did. He had

during the year revisited those spots. His journey was something like Mr. Scott's, inasmuch as it was of the nature of a holiday trip, but his real object in going there was on behalf of the Royal Niger Company. He travelled up the Niger, and went 300 miles into the interior, meeting savage tribes such as he had never met before. He saw being carried out under the auspices of the Royal Niger Company the very means which he considered the best designed to put down slavery and its attendant horrors. To the advantage of a good moral influence upon the natives the company joined the power to carry out their civilising designs, and not through useless buccaneering expeditions, proclaiming war and calling for the appearance of the military and navy where it was of no use, but by the means of commercial civilisation and, above all, of schools. Sir James Marshall then went on to describe what happened when he was out in the region referred to. He said: The reason why I was asked to go out was, I believe, that I had been there for a period of ten years before, and was perhaps not likely to do anything rash. And perhaps it was as well that I had experience, because at one of the first places at which I landed there were members of various savage tribes sitting about, buying and selling merchandise, and I was informed that such a tribe and such a tribe were cannibals; they were not only slaveholders, but they also ate their slaves. It may be thought that it was my duty to seize them and try them on the spot. I am afraid, however, that had anything of the kind been attempted we ourselves would most probably have been eaten. There is no use rushing on a huge evil unless it can be successfully cleared away. That charge of the six hundred at Balaclava was a very noble one, but it was a very stupid thing to be done, looked at in the line of cold reasoning. It would be still worse to rush at slavery in any foolish or headstrong way, for slavery is an institution which cannot be swept away by such means. I knew I should only get the company into trouble if I said to those men, "You must not have slaves to hold or to eat." Everywhere in those regions I saw slaves. They were to be found all along the banks of the river being brought down by Mohammedan tribes, of which some people seem to think so highly, to be sold. Not only was slavery going on everywhere, but chiefs were constantly murdering them, and within a few yards of where we were living. But these proceedings at such close quarters could not be tolerated, and I therefore decided to tackle it at once. Chiefs were plentiful, every few hundred men having a chief over them. When a chief was made, his installation was signalled by the act of killing two slaves; his burial necessitated the murdering of three slaves. This kind of thing was carried on to such a pitch that if even a chief's red cap fell off a slave had to be killed to pacify some fetish or other. It was agreed by the officers of the company that notice should be taken of that, so when the chiefs came to give a sort of welcome to me and my brother judge—there were about fifty of them, a terrible-looking set of men such as I had never before seen, with a whole lot of attendants, including slaves—I told them from the company and from the British Government that savage cruelty of that kind would not be tolerated and that its commission would be a hanging matter. Some of them were quiet, some merely giggled, and some laughed outright. But the announcement had a great effect upon them, and they went away to talk about it amongst themselves. Afterwards one of their chiefs died close by, and they sent to me to say that it was necessary to bury three slaves in this case, and in the case also of a man who had died. Would I allow it just for this time? It was a hard thing to decide. It was a matter of their religion, but I was firm and the company was equally so. An expedition went out to try to rescue the victims, but the attempt proved unavailing. They knew we were perfectly determined about putting down such cruelties. We were besieged by them, and they would much have liked to get our heads, but luckily the Royal Niger

Company have a splendid set of men in their service. It made me feel that more could be done by these commercial companies for civilisation than any use of Government services. Those men worked for the company for civilisation and to promote good feeling among the natives. They behaved to them in a very kind way, and are ready to risk their lives. On one occasion, when I judged it necessary to resort to physical force, physical force was used to put down those chiefs, and they were crushed in such a way that in a very few days they came humbly submitting and promising that they would never kill any more slaves. I have never seen such good work done by the Government, and I congratulate the Royal Niger Company on what they did. For the result was, that a few days after the chiefs had submitted, two slaves came and said they wanted to see the white men and to thank them for what they had done on their behalf. We received them. They said: "We represent the slaves of a sovereign. When we first heard of this war we did not believe it would be on our account. We could not believe that the white men were really fighting for us, but now we know such is the case. We have been kept like felons and pigs, and taken out to be slaughtered whenever our masters have wished it. But now we know that it won't be so any longer, for the white men will look after us." I told them that the white men would fight for them again if necessary. The other slave, who was an old man, before he went away stretched out his two hands and said: "My heart is as big as this." That is what a commercial company has done for putting down slavery. Further, there are schools being arranged for teaching the young better things than their fathers practised. The necessary policy is to slowly and surely put down such practices as are so deeply deplored and put better things before the eyes of the Negroes, and in the event of there arising necessity for the exhibition of force to put down brutality, to use such force. I am glad that there has been in Mr. Scott's paper nothing of the filibustering element which might have been imported into the discussion to-night. I for one can see that the great work is to go on where we can do something and to avoid any Quixotic action. I have great pleasure in moving a very cordial vote of thanks to the Rev. Lawrence Scott for his interesting address.

The Rev. L. C. CASARTELLI, M.A., Ph.D., seconded the motion, which was put and carried unanimously.

The Rev. L. SCOTT responded, and moved that the best thanks of the Society be given to the Chairman for his admirable presidency that evening.

Mr. R. COBDEN PHILLIPS (formerly of the Congo) seconded the motion, and said that it seemed to him of good augury that so very much stress had been laid upon the point that Europe must exercise a civilising influence over the African, always allowing the African to govern himself in his own country. There was a belief which he had long held and had always in season tried to spread, which was that a militant occupation of Africa was a very great hindrance to civilisation there, as first of all it made the natives more militant and less civilisable, and, secondly, the population got lessened through the active operations resulting from such spirit, which would eventually leave no one to civilise. And perhaps, also, too much stress had been laid on the connection of the institution of slavery with Mahometanism. It had come out during the discussion that evening that the Dahomeans had slaves whom they sometimes treated with extreme cruelty, often even killing some to be buried along with their masters. That was a custom which prevailed more or less among many of the negro tribes which were militant tribes on the Gold Coast. In the lake district there were many tribes which enslaved each other, and yet were by no means Mahometan. Going further down the West Coast to Portuguese territory, it would be found that until a few years ago the Christian population were slaveholders. Sailing away across the ocean there would be found a land where, up to a recent date, the people, though

nominally Christian, were the harsh slaveholders of a million slaves. That went to show that Mahometanism was not alone to blame for the slavery which was to be found in Africa. It was, it seemed to him, much more to be attributed to the militant state of society than to any specific dogma of the Koran. But slavery was a thing which, though they might recognise it, they could not uproot. Why had the Arab power increased so very much in Central Africa? Several answers to that question had been given, one remarkable answer being given in the *Manchester Guardian* of 17th August, by Commander Cameron. It was that it was owing to the journeys of such men as himself, Stanley, and other African travellers having opened up the road for the Arab. That was remarkable, if true, and there did indeed seem to be some connection between European expeditions into the interior and the westward march of the Arabs. But it would be found that when the Europeans went they went offering the natives goods in exchange for their produce, at the same time keeping away from those natives the means, such as firearms and gunpowder, of defending themselves and their newly-acquired possessions against invaders. The consequence naturally was that when a tribe of any cultivation or smartness had provided itself with such things as cloths, brass rods, beads, &c., their want of firearms left them an easy prey to Arabs who were well armed, or to any of the marauding tribes in league with the Arabs. For it was a fact that many tribes were actually in league with the Arabs, acting as middlemen between them and peoples in the interior. That, in his opinion, was one reason why the Arab power had increased so much of late. From a sixteen years' residence in Africa he could say that there was very little ground for assuming that firearms coming into the possession of the natives might be turned against traders. Traders would be properly treated and respected in return for proper treatment shown by them. He fully endorsed the letter which Mr. Wylie had addressed to the meeting. He had himself ventured to express through the press the opinion in regard to the Soudan question that the proper course was to withdraw protection from the Egyptians and allow the Soudanese to have the coast, seeing that they had driven the Egyptian taxgatherer out of the interior. Mr. Phillips then proceeded to criticise the project which Commander Cameron, at a previous meeting of the Manchester Geographical Society, had put forward. It was in respect to the idea of getting up a company and going to the centre of Africa to govern affairs and to stop the slave raiders. The revenue of that company was to be raised by taxing the natives or traders, or both, as best might be. The company was to enjoy a return which would not only pay the necessary expenses but also provide a dividend to the subscribers. Anybody who had been in Africa knew that it would be impossible to get a penny out of the natives except in the form of import or export dues, and it seemed to him the worst thing possible to undertake anything which necessitated the imposition of duties or the discouragement in any measure of trading operations. A company such as that proposed could not establish its jurisdiction wherever it listed, inasmuch as it would find itself in the dominion of some one or other European nation settled there, the land being already taken up either under protection, occupation, or sphere of influence—nothing in the way of territory being left to the natives, and it was not likely that any of those authorities would allow any Central African company to govern them in any way.* It might be asked whether any of the operations in Africa intended for the best had turned out well. The answer was emphatically, No. It would be very difficult to retrace any step already taken, but he judged, from the varied opinions expressed that evening, that such a consideration of the question was a very great stride in the right direction.

The vote of thanks was heartily carried, and the proceedings closed.

* He read an extract from Lord Salisbury's secretary, in reply to a communication he had addressed to his lordship, which stated that the Foreign Minister was not desirous of figuring as a patron of the scheme, contrary to the public statements of Commander Cameron.

EIGHTY-FIRST MEETING

Of the Society, held in the Library, Wednesday, December 12th, 1888, at 7-30 p.m.
Mr. B. O'Connor in the chair.

The minutes of meetings held November 21st (79) and December 5th (80) were read and approved.

Announcements of new members nominated for election by the Council, and of the next meeting of the Society, were made.

The following presentations were announced :—

London. Geological International Congress. The seven volumes of Proceedings. By the Secretary.

The Campaign of Gordon's Steamers. Major C. M. Watson, C.M.G., R.E. By the Author.

Stirpiculture. Mrs. V. C. W. Martin. By the Author.

Washington. 71st Annual Report of the American Colonisation Society.

African Repository, October, 1888.

The New Africa.

Unfolding Africa.

Half-Century Memorial, 1867. By the American Colonisation Society.

Washington. Report of Polar Expedition to Point Barrow, Alaska. Lt. Ray.

Report on Natural History Collections made in Alaska. E. W. Nelson.

Report on Natural History Collections made in Alaska. L. M. Turner. At the instance of Major-General Greely, War Department.

Wellington, N.Z. Map. The Interior Cold Lakes of Otago. By the Survey Office, Wellington, N.Z.

Australia. Rainfall in Australia, by J. T. Wills, F.R.G.S. By the Author

London. Geographical Diagrams, &c., on roller and varnished, with Handbook.

England and Wales, on roller and varnished, with Handbook.

Multum in Parvo Atlas. Price 2s. 6d. (See page 297.) W. and A. K. Johnston. By the Publishers.

L'Esclavage Africain, the London address of Cardinal Lavigerie.

L'Esclavage Africain, the Brussels address do.

L'Esclavage Africain, the Paris address do.

L'Esclavage Africain, Letter to German Conference, by do.

[These four Addresses by His Eminence Cardinal Lavigerie, presented by the Right Reverend the Lord Bishop of Salford.]

The Report to the Society on the last meeting and work of the British Association (see page 283), and the address of Col. Wilson on "Commercial Geography" having been read (see page 273), it was resolved that the thanks of the Society be given to Mr. F. J. Faraday, the delegate of the Society, and the Secretary was requested to ask the Rev. L. C. Casartelli and Major Plant to assist in the meteorological work suggested by the delegate.

A paper on "Paraguay" (see pages 263) was then read by the Secretary, from materials supplied by Mr. J. Parlane, J.P. At the conclusion of the paper, Messrs. Salomonson, Belisha, Alderman Husband, and others took part in the discussion. A resolution thanking Mr. Parlane for the papers was then carried.

The following letter from Messrs. J. F. Hutton and Co., informing the Society of the death of Mr. H. H. Hutton, one of its members, who had been in Africa, was then read :—

“29, Dale Street, Manchester, December 10th, 1888.

“Dear Sir,—It is with deep regret we have to inform you of the death, to-day, after a short illness, of Mr. Horace Heys Hutton, son of our senior and partner in the firm.—Your obedient servants, (Signed) “JAMES F. HUTTON AND CO.”

Mr. HENRY WOOD thereupon moved and Mr. Alderman HUSBAND seconded the following resolution, which was supported by several other members and carried unanimously :—

“That this meeting of the Manchester Geographical Society, having been informed of the death of Mr. H. H. Hutton, desires, on behalf of the Society, very respectfully to tender to Mr. Hutton and his family their most heartfelt and sincere sympathy, in the loss we have all suffered in the early close of so promising a life as that of Mr. Horace H. Hutton. And that the Secretary be requested to convey the substance of this resolution to Mr. Hutton.”

This having been communicated to Mr. J. F. Hutton, he replied as follows :—

“Victoria Park, 15th December, 1888.

“Dear Sir,—My family join with me in begging you to express to the Council how much we feel their kind participation in our sorrow at the present moment, and we value much their kind expressions of sympathy in the trial it has pleased God to call upon us to bear. The touching tribute of regard from the Geographical Society conveyed in your letter is much appreciated by us, and will remain impressed in our hearts.—Yours very faithfully, (Signed) “JAMES F. HUTTON.

“Eli Sowerbutts, Esq., Secretary of the Manchester Geographical Society.”

The Secretary reported having had an intimation, as below, of the death of Dr. Hunfalvy, and that he had despatched a sympathetic note to the Secretary of the Hungarian Society, the letter was approved by acclamation :—

“Budapest, le 12 Décembre, 1888.

“Le Comité de la Société Hongroise de Géographie a la douleur de vous faire part de la perte que la Société vient de faire en la personne de son très-honoré président, le DR. JEAN DE HUNFALVY, conseiller du roi, professeur à l'Université de Budapest, membre de l'Académie des Sciences de Hongrie, décédé le 6 Décembre, après une courte maladie, dans sa 69ième année.

“Les funérailles ont eu lieu le 8 de ce mois avec le concours d'un grand nombre de membres de la Société, réunis pour lui rendre les derniers honneurs.

“Ce qui était périssable en lui nous le confions à la terre ! Mais son esprit vivra dans ses œuvres, comme son souvenir vivra dans le cœur de ses amis !”

A vote of thanks to the Chairman closed the meeting.

ADDITIONS TO THE LIBRARY.

EXCHANGES WITH HOME AND FOREIGN SOCIETIES, 1888.

CORRESPONDING SOCIETIES IN GREAT BRITAIN.

- Chatham. Professional Papers of the Corps of Royal Engineers, 1885.—The Sûdan Military Railway. By Lieutenant M. Nathan, R.E., with map. 23pp. Presented by Major Watson, R.E.
- Edinburgh. An Account of the Eruption of Mount Vesuvius, of April, 1872. By J. M. Black, F.G.S. Views and Map.
- Suez Canal, Meteorology and Hydrology. By W. G. Black, F.R.M.S. 10pp. 1884.
- Climate of the Delta of Egypt in 1798-1802. By W. G. Black, F.R.C.S.E., F.R. Met. Soc. 8pp.
- Marine Rain Gauge, and Rainfall at Sea. By W. G. Black, F.R.M.S., with diagram. 5pp.
- Marine Anemometer. By W. G. Black, F.M.S., with Plate. 3pp. [All these presented by Dr. Black, of Edinburgh.]
- Edinburgh. The Scottish Geographical Magazine. Vol. IV. Nos. 1 to 12.—(1) On the Height of the Land and the Depth of the Ocean (with map). The Welle Problem.—(2) Burma: The New British Province (with map). Across China: From Bhamô to Shanghai. Pulo Condore, a Paper by Allen Catchpoole (1703).—(3) A Criticism of the Theory of Subsidence as affecting Coral Reefs (with maps). Explorations in South America. The Welle Problem. The Partition of Central Africa.—(3, 8) New Guinea: Attempted Ascent of Mount Owen Stanley (with map).—(4) The Welle-Makua Problem. Recent Botanical Exploration of Arabia.—(4, 5) The Exploration of the Gulf of Guinea (with diagrams).—(5) A Bathymetrical Survey of the Chief Perthshire Lochs, and their Relation to the Glaciation of that District (with map). A Short Geographical and Historical Sketch of Bosnia and the Herzegovina. Examination Scheme of the Royal Scottish Geographical Society.—(6) Caucasian Idioms. The East Central African Question. The Extension of Arab Influence in Africa. Recent Exploration in Tierra del Fuego.—(7) On the Effects of Wind on the Distribution of Temperature in the Sea and Fresh Water Lochs of the West of Scotland (with map). The Utilisation of Waste Lands. Glen Doll.—(8) Recent Explorations in the Territories of the African Lakes Company (with map). Lukoma: an Island in Lake Nyassa.—(8, 9, 11) Notes on the Dutch East Indies.—(9) On the Travels of Ibn Batûtah. The Western Sahara.—(10) Explorations in the Cameroons District (with map). Little Russia. Sea Temperatures on the Continental Shelf.—(11) Russian Topographical Surveys. Note on the Distribution of Trade Centres (with map).—(12) The Historical Aspects of Indian Geography (with map). Irrigation, Natural and Artificial, in Samarkand and Bokhara. Report to Council. Proceedings of the Society, Geographical Notes, New Books and Maps.
- Glasgow. Proceedings of the Philosophical Society of Glasgow. Vol. XIX., 1887-8. Social Aspect of Sanitation. J. B. Russell, B.A., M.D., LL.D.—Factory Industry and Socialism. By William Smart.—Technical Schools Act 1887. By Henry Dyer, C.E., M.A.—Modern Cell System, and Phenomena of Fecundation. By J. G. McKendrick, M.D.—The Healing Error of the Compass in Ironships. W. Bottomly.—Public Museums as Aids in Teaching. James Colville.—On the Training of Architectural Students. F. H. Newberry.—“Greek Thomson.” Thomas Gildard.—Early Sculpture in Scotland. Robert Brydall.—The River Plate System. John Galloway.—Measurement of Electric Currents. Andrew W. Meikle.—Noxious Vapours and Town Smoke. Alfred Fletcher, F.C.S.—The Land Question in Wales. Henry Jones, M.A.—Demonstration in Bacteriology. Ernest Mayland, B.S.—Important points in the Sanitation of a great City. American Currency. Constitution and course of the Money Markets. Numerous plates and map of River Plate Territories. Reports, Memoirs, &c.

Glasgow. Summer Tours in Scotland. Official Guide, 1886. D. Macbrayne, Glasgow (maps, &c.) Lancashire and Yorkshire Railway Company.

Glasson Dock, Lancaster. Kludonometric Tide Tables for the Lancashire Coast, showing the Time of High Water and Height of Tide at Glasson Dock and Lancaster, on the River Lune; also Fleetwood and Liverpool, with a Table of Corrections for the Atmospheric Disturbance of the Tide Height, and other useful Information—Pilots, Ports on Lancashire Coast, Time, and Shifting Sands in River, with charts and plates. By Captain W. N. Greenwood, F.R.M.S. 86pp.; 1s.; 1888. On Atmospheric Pressure, and its Effect on the Tidal Wave. By Capt. W. N. Greenwood, F.R.M.S.; 3pp.—The Life of a Wave. By Capt. W. N. Greenwood, F.R.M.S.; 17 pp.; 1888.

Leeds. Report of the Yorkshire Union of Mechanics' Institutes, read at the 51st Annual Meeting at Castleford, June 20th, 1888. 94pp. Leeds. The Society.

Liverpool. Thirty-sixth Annual Report of the Committee of the Free Public Library, Museum, and Walker Art Gallery of the City of Liverpool.

Liverpool. Liverpool Geological Association Annual Report, 1888.

London. Journal of the East India Association. Vol. XX. Nos. 1, 2, 3, 4, 5. 1888.—(1) The Gold Fields of Southern India (map of Mysore Gold Fields). Memorial to the Chancellor of the Exchequer regarding the Gold and Silver Plate Duties and the Laws of Hall Marking.—(2) The Loyal and Patriotic Ideals of the Indian People.—(3) Annual Meeting and Report.—(4) A Proposed Gold Standard for India.—(5) Agricultural Improvement in India.

London. Science Schools Journal. No. 8, January; No. 12, May; No. 14, October; No. 15, November; No. 16, December, 1888. Conducted by the students at the Normal Schools of Science, South Kensington.

London. Stock and Shares, an Independent Journal for Investors. Vol. 2. No. 9, 1888. Quotations as to Stock and Financial Reports.

London. Programme of Examinations for 1888 of the Society of Arts, London. J. M. Yeats, LL.D.

London. Annual Report of the Peace Society, 1888.

London. State Colonisation. By the Right Hon. the Earl of Meath. 1888

London. The Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. XX. Parts 1, 2, 3, 4. 1888.—(1) The Cuneiform Inscriptions of Van, by the Rev. Professor A. H. Sayce, M.A. M.R.A.S. Some Suggestions of Origin in Indian Architecture, by William Simpson, M.R.A.S. The Chagatai Mughals, by E. E. Oliver, M.I.C.E., M.R.A.S. Sachau's Albirûni, by Major-General Sir J. F. Goldsmid, C.B., M.C.S.I., M.R.A.S. Correspondence. Notes of the Quarter: Reports of Meetings, Proceedings of Asiatic and Oriental Societies. Contents of Foreign Journals, Excerpta Orientalia.—(2) The Dāgabas of Anurādhapura, by John Capper. Andamanese Music, by M. V. Portman, M.R.A.S. Tsiéh-Yao Tchuen de Tchouhi (extracts), by C. de Harlez, M.R.A.S. Correspondence. Notes of the Quarter: Reports of Meetings, Contents of Foreign Journals, Lectures on Oriental Subjects. Notes and News. Reviews.—(3) Early History of Northern India, by J. F. Hewitt, late Commissioner of Chota Nāgpur. Customs of the Ossetes, and the Evolution of Law, by Prof. Max Kovalefsky (translated). The Languages spoken in Russian Turkestan, by R. N. Cust, LL.D., M.R.A.S. Notes on Early Buddhist Symbolism, by R. Sewel, M.R.A.S. The Metallic Cowries of Ancient China (6000 B.C.), by Prof. Terrien de Lacouperie, Ph. and Litt. D. Correspondence. Notes of the Quarter: Reports of Meetings, Contents of Foreign Journals, Obituary Notices, Notes and News, Reviews.—(4) The Tantrakhyaṇa: a Collection of Indian Folk Lore, by Cecil Bendall. A Jataka tale, by H. Wenzel, Ph. D. Moksha, or the Vedantic Release, by Dvijadas Datta. Correspondence. Notes of the Quarter: Notes on MSS. obtained at Kathmandu. Notes and News. Bible Translation. General Index to 1st and 2nd series of Asiatic Journal.

London. Blue Books, &c., presented by Sir W. H. Houldsworth, Bart, M.P.:

Further Correspondence respecting the affairs of Basutoland. 1886 (C 4907).

Further Correspondence respecting the affairs of Bechuanaland and the adjacent Territories. Map (C 5070).

London. Blue Books, &c.—*Continued.*

- Copies and Translations of the Treaties referred to in the Commercial Conventions between the Governments of Great Britain and Spain, 26th April, 1886, with a table of the Spanish Conventional and Unconventional Tariff. June, 1886 (C 4778).
- Copy of the Report to the Board of Trade, entitled, "Progress of the Sugar Trade," by Sir T. H. Farrar. August 7, 1884, No. 325. Tables.
- Reports of the Agricultural Departments of Foreign Countries: France, Germany, Austria, Italy, Denmark, Sweden and Norway, Belgium, Netherlands, Switzerland, and United States. August 2nd, 1883 (C 3926).
- Reports on the System of Tenure of Dwelling-houses in Austria and the other European Countries. 1884 (C 4136).
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- Freiburg (Baden). *Die Katholischen Missioner*. None received.

Florence. *Bulletino della Sezione Fiorentina della Società Africana D'Italia*. Vol. III., No. 8. Vol. IV., Nos. 1 to 7.—Vol. III.: (8) Harar. The Colonial Problem, A Conference on.—Vol. IV., (1, 2) Our Possessions in Africa: Conference. The Galla Language, by Professor A. de Gubernatis. The Death of G. di Brazza Savorgnan. List of Members. Count Peter Brazza.—(1 to 4) Varieties. (1, 2, &c.) Assab.—(1, 2, 3, &c.) Proceedings of the Society.—(1, 2, 7) Doctor Ragazzi and Count Antonelli.—(3, 4) The Usefulness of Succouring the Italian Missions. Massowah: at present and in the future. Assab in 1886. Captain Casati. Italian Mission School at Suakim. The Commerce between Italy and Africa: Tunis, Algeria, Egypt, Zanzibar, and Aden.—(5) Zanzibar. The Climate of Let-Morefia. Red Sea Coast, Cape of Good Hope.—(6) Travels in Ethiopia. The Italians in Abyssinia. Pearl Fishing in the Red Sea.—(6, 7) Necrology: S. Tommasi, A. Boutourline, and C. Correnti.—(7) R. Gessi in Africa. A Galla Kingdom. Emin Pasha and Captain Casati. Doctor Alfieri, Traversi, and Robecchi, Engineers. G. Couraud. Zanzibar.—(8) Captain Camperio. English Missions to Abyssinia.—(8, 1, 2, &c.) Massowah.—(8, &c.) Bibliography and Cartography.

Geneva. *L'Afrique, Explorée et Civilisée*. Ninth year. Nos. 1 to 12, 1888. (Reference to page.)—(All numbers) Geographical News, Correspondence.—(16) The Country of Garenzané.—(22) Portuguese Expedition to the Country of the Muata Yanvoo.—(46) Extension of Arab Influence in Africa.—(56) Lorenzo Marques.—(80) Commerce and Navigation between Algeria, Tunis, and France.—(83) East Coast of Africa.—(96) Navigation Routes in the Western Mediterranean Sea.—(115) The Commerce in Gun Arabic.—(117) The Ranie in Algeria.—(123, 180, 314) Pretoria and Tati.—(147) The Oubangi: MM. von Gèle and Liénart.—(154) Sefoula (Higher Zambesi).—(156, 283) Seshéké.—(157) Schönsberg, from Dr. Schulz.—(160) The Congo and the Oubangi-Ouellé.—(182) Capello and Ivens Expedition in 1884-5.—(192) Route of Capello and Ivens.—(215) Uganda, Unyora, and the Egyptian Equatorial Province.—(241) Locusts in Algeria.—(248) The Prisoners of the Mahdi.—(268) Last News from Khartoum.—(272) An example of the influence of Arabs in Central Africa.—(277) Extension of the British Protectorate on the Gold Coast.—(282) Berlin from Dr. Schweinfurth.—(287, &c.) Bibliography, Maps.—(305) Short statement of the progress of knowledge of Africa during the present century.—(334) England and Germany in East Africa.—(365) The Progress of Tunis.—Map of Africa, describing the parts known and unknown, after Prof. Simpson, by M. A. Wauters. And a great variety of other information relating to Africa.

Geneva. *Le Globe Journal Géographique, Organe de la Société de Géographie de Genève*. Vol. VII. No. 1, November, 1887, to January, 1888. No. 2, February to May, 1888. And supplement, index, &c.—Vol. VIII. No. 1, November 1888, to January, 1889. Proceedings of the Society. Reports of the President, Librarian, and Treasurer.—Vol. VII.: (1) Mount St. Elias, in Alaska. The Straits of Magellan and the Narrows of Patagonia. Sidon, Damascus, and Baalbec. Father Lobo and the Jesuits in Abyssinia. The Argentine Republic. The Banks of the Loire. (2) The Red Cross Mission in Montenegro. Tierra del Fuego, 1st and 2nd Part. Travels in the Chinese Empire. Cannobia and its Neighbourhood. The Vilayet of Diarbékir. Nautical Astronomical Elements. Map of Etna. The Last Eruptions of Etna. The Island of Socotro. Malta and its Dependencies. Members of the Society. Reports of the Society.—Supplement to Vol. VII.: *Memoir* by M. B. de Beaumont on Cartographic Projections, and Presenting an entirely new Projection of the Sphere as a Planisphere (illustrated). Vol. VIII.: (1) Meeting in Honour of Sir Richard F. Burton. Eight Hours at Donarneauz (Brittany). Lieut. Younghusband's Travels in Mongolia. Equatorial Africa, the Country and the Inhabitants. *Souvenirs of Taormina* (Sicily). The Aqueduct of Carthage. Prince Roland Bonaparte's Travels and Researches in Norway and Corsica. Reports of Delegates to the Geographical Congresses of Aarau and Bourg. Report of the Meeting of Delegates of the Swiss Geographical Societies at Berne. Necrology, &c., &c.—All Numbers: Bibliography, Correspondence, List of Works received.

Gotha. *Abdruck aus Dr. A. Petermann's Mittheilungen*. 1888. Part 7 and Supplement. The Sankuru (map). Siatu and Lupton Bays and the Mahdi. Monthly Notes of New Geographical Information. (These are sent to us when they give extracts from our Journal.)

- Gotha. Abdruck aus Geogr. Jahrbuch, Bend 12. Herr von Wichmann. List of Geographical Societies in the World in 1888.
- Greifswald. III. Jahresbericht der Geographischen Gesellschaft zu Greifswald. Part I. 106 pp. Bay of Naples previous to the Formation of Monte Nuovo, 1538. Temperature and Climate of Putbus.
- Guatemala. Informe de la Direccion. General de Estadistica. None received for 1888.
- Halle. Mitteilungen des Vereins für Erdkunde zu Halle a. Saale. 1888. 200 pp.—Saale Valley at Halle. The Mansfeld Lakes. Literature of the North Thüringen Flora.
- Hamburg. Mitteilungen der Geographischen in Hamburg. Part I. 1887—8. 84 pp.—Winter in the Alps. Sumatra. Geographical Discoveries, 1883—88. Ruk Islands, Caroline Archipelago (map). Speech, Manners, and Customs of Samoa Islanders. Heligoland (with map).
- Hanover. Siebenter Jahresbericht der Geographischen Gesellschaft zu Hanover. None received.
- Havre. Bulletin de la Société Géologique de Normandie. None received.
- Havre. Société de Géographie Commercial du Havre. (Nov.-Dec., 1887, not received.) Jan.-Feb., No. 1; March-April, 2; May-June, 3; July-Aug., 4; Sept.-Oct., 5; Nov.-Dec., 6, 1888; and Annual Supplement.—(1) The Penal Colony of New Caledonia. The Sources of the Orinoco. The Western Sahara. The Manchester Ship Canal.—(2) Guayaquil. Notes on the Ports of Matupi and Tomil. The French on the Niger. A Manual of Commercial Geography: meeting on the subject.—(2, 3) Topography.—(2, 5) Questions for discussion at the 10th Session of the National Congress of Geography and Report.—(3) The Abolition of Slavery in Brazil. Travels in the Pamir. Vladivostok. From Payta to Callao. From the Pacific to Para, South America. The French Soudan.—(4) Deli (Sumatra). The Mussulman Pilgrimage to Mecca from the Persian Gulf. French Emigration to Canada. Notes on Newchang (Manchuria). Notes on Ilo-Ilo (Philippine Islands). The Work of France in Tunis. French Commerce with Uruguay. Exploration of Central Africa.—(5) Institution of a Geographical Institute in France.—(6) Consular Reform. Sable Island. Institution of a Nautical Bureau. Australia. Paleolithic Remains at Havre. Supplement, Report of Secretary, Budget, List of Members, &c., &c.—Colonial Chronicle: (1) Africa and the European Powers—France, England, Italy, and Spain. Dahomey. The Portuguese in Africa. The Colonial Exhibition.—Geographical News: (1) The Stanley Expedition. The French Congo—Exploration of the Niodi Kouilou. The Problem of the Ouellé.—(1) Varieties. Bibliography. Proceedings of the Society. List of Works, &c., received.—(2) Necrology.
- Irkutsk. Izvestiya Vostochno-Sibirskova Otdela Imperatorskova Russkova Geographicheskova Obshchestva [Journal of the East Siberian Branch of the Imperial Russian Geographical Society.] Tome XVII., Nos. 3, 4. Goda, 1887. XVIII.—XIX., Nos. 1 to 5. 1888-9. (See next volume.)
- Jena. Mitteilungen der Geographischen Gesellschaft (für Thüringen) zu Jena. Vol. VI., Parts 3-4. Vol. VII., Parts 1-2. 1888.—Vol. VI. (3-4) South Borneo. Proverbs of the Basutos. Dialect of Coburg. Flora of Jena.—Vol. VII.: (1-2) North Western Madagascar. Zoology of the South Sea. The Schwarza Valley, Thüringa (with two maps.)
- Kazan. Voina Muschul'man protiv Kitaitsev. Prilozhenia, sostavlennyya N. N. Pantusovym. Vypusk 2. Kazan, 1881.—War of the Mussulmans against the Chinese. Appendices by N. N. Pantusov. Part II. Twelve songs or ballads in the language of the Taranchi, a Turkic dialect of Asiatic Russia, with interlinear translations and abundant philological and grammatical notes, and an account of the auxiliary verbs.
- Kazan. Tarikh Shakhrokh, Istoriya Vladaetelei Fergany, Sochinenie Molly Niyazi Mukhammed ben Ashur Mukhammed Khokandza. Izdannyya N. N. Pantusovym. History of the Rulers of Ferghana, by the Mollah Niaz Muhammed ben Mollah 'Ashur M. of Khokand. Edited by N. N. P. Kazan, 1885. Text only, without translation or notes.
- Kazan. Svyedenyeniya o Kuldzhinskom Raionye za 1871-77 gody. S. N. N. Pantusovym.—Information concerning the Kuldja District between 1871-77. Kazan, 1881. Contains abundant statistics.

- Kiel. Mittheilungen aus dem Mineralogischen Institut der Universität Kiel. Editor, Dr. J. Lehmann. Band 1, Heft 1, 1888, and Reprint.—Gneiss and Granite in the Saxony Mountains. The Geology of the Hullen District, with maps of Kiel and district.
- Leipsic. Mittheilungen des Vereins für Erdkunde zu Leipzig.—None received.
- Lille. Bulletin de la Société de Géographie de Lille. Nos. 1 to 12, 1888 (No. 6 not received).—(1) Chaldea and Assyria. Travels in the Western Sahara and South Morocco, Capes Juby and Garnet, &c. (map).—(1, &c.) List of Members, Proceedings, Distribution of Prizes, &c. Geographical News, arranged under the headings of Europe, Asia, Africa, America, Oceania, and Polar Regions. Notes of Commercial Geography, arranged under the headings of Europe, &c. These two arrangements give a very complete view of geographical news, travels, discovery, and a large collection of commercial information and statistics.—(2) The Artificial Lighting in the Homes of Different Peoples.—(2, 3, 4) Three Years in the Congo. Camibals of the Niger River. The Bangalas.—(3) Memoir of Gosselin, a Lille geographer (portrait and autograph letter).—(3, 9) The Forest of Mormal. (4) Iceland.—(5) The Valley of the Senegal in 1886 (map). Manners and Customs of Tonkin.—(7, 8) Six Weeks in Rome.—(8) French Soudan (map).—(9) Twenty Days in Canada. English Annexations in South Africa.—(10) France, England, and Italy in the Red Sea.—(11) Through the Grisons. Charlevoix: A French Historian of New France in the 18th Century.—(12) French Congo. Bulgaria: History and Condition during the 19th Century. The Port of Dunkirk. Poetical Contributions by C. Manso.—Excursions of the Society: (7) Archaeological to Bruges. The Country of Liege. From Antwerp to Flushing and Middlebourg. From Lens to Arras, the sources of the Deule. Mount St. Eloy.—(10) Fontinette and St. Omar.—(11) The City of Ypres and Mont Kemmel.—(11, 12) Visit to the North Squadron in the Roads of Dunkirk.—(12) The Grottoes of Han and Rochefort. To London. To Mount Lencula.
- Lisbon. Gazeta de Portugal. Vol. I., Nos. 54 to 351 (some numbers not received). Edited by Senor Carlos Lisboa.—Geographical News of the Day, Extracts from White Books, Leaders and Dissertations, Market News, Prices Current, Geographical Notes, the Portuguese Colonies, and a great variety of information of the day, and discussions on colonial and commercial matters from the Portuguese point of view.
- Lisbon. Boletim da Sociedade de Geographia de Lisboa. 1886. Vol. VII., Nos. 1 to 12, 1887.—(1) Fauna of the Lusitadas. L. Cordeiro: Notes for a history of the National Jubilee of 1880.—(2) Expedition to the Cubango (with maps and sketches). The Sedimentary Lands of Portuguese Africa, and Notes on the Geology of that Continent.—(3) Expedition to the Kingdom of Muzilla (with map).—(4, 11) Contributions to the Cryptogamic Flora of North Portugal. Portuguese Congo.—(5) Portuguese Exploration of Madagascar, in 1613, by Luiz Marianno. On the Road of Musiris.—(6) The Exhibit of the Lisbon Geographical Society at Antwerp in 1885. The Huilla Mission—official documents. Mossamedes.—(7) Early Explorations of Angola-land (with maps). Colonisation of Timor.—(8) Portuguese Guinea.—(9) Collection of Camoen's Documents in the Library of the Society at Lisbon.—(10) Portuguese Creole Dialects in the Isle of St. Thiego and about Cape Verde.—(10, 11, 12) Proceedings of the Society for 1887. Zambesi Territories—Notes and Information.—(12) History of Minas, King of Ethiopia, circa 1500.
- Lisbon. La Revue de Portugal et de ses Colonies. Editor, Senor Carlos Lisboa. None received.
- Lourenço Marques. Distrito de Lourenço Marques. Nos. 1, 2, 3, 1888. Published by Senor C. A. W. Russul, jun.—(1, 3) Lorenzo Marques Railway.—(1) The Historical Records of Portuguese East Africa.—(2) The Value of the Publication to East Africa.—(3) The Railway to the Transvaal. Correspondence, Editorials, General News, and Prices. A strong protest is made against English claims.
- Lubeck. Mittheilungen der Geographischen Gesellschaft in Lubeck.—None received. (See 1889.)
- Lyons. Bulletin de la Société de Géographie de Lyon.—None received.
- Madrid. Boletín de la Sociedad Geográfica de Madrid. Vol. XXIV., Nos. 1 to 6. Vol. XXV., Nos. 1 to 6. 1888.—Vol. XXIV.: American Colonisation. Colon's House in Valladolid. The Island of Paragua (Philippines). An Ascent of

Pichincha (South America) in 1582. Panama Canal (map of isthmus and canal). Spanish Possessions in the Gulf of Guinea. Spanish Emigration to the Philippines. Agricultural Colonies in the Philippines. Agricultural Information Prepared by a Committee of the Society. A Free Port in the Spanish Antilles. Present Position of Morocco. Voyage to the Gulf of Guinea. Shanghai. The Cities of the Argentine Republic.—Vol. XXV.: The Republic of Bolivia. Travels in the Interior of the Island of Mindanao. Recent Travels in Siberia. Velarde's Last Explorations: Rivers Beni, &c. Universal Exhibition at Barcelona (plans of exhibition and port). The State of Oaxaca. The State of Michoacan (Central America). The City of "Uazzan." Practical Study of New Interests in Japan. The Republic of Uruguay. Topographical Society of France. The Spaniards in the Isle of Cerdena. Humboldt at Lima. Proceedings of the Society, List of Members, Smaller Notes, &c.

Madrid. *Revista de Geografía Comercial* (Órgano de la Sociedad Española de Geografía Comercial (African and Colonial Society). Nos. 49 to 52, Nos. 54, 56, 59. 1888. (51) Treaty of Commerce between Spain and Italy. Treaty of Commerce between Spain and Russia. Museum of Argentine Productions.—(52) The Floating Exhibition from Spain for the South Americas.—(56) Spanish Commerce in Morocco. Pest Commercial Museum.—(59) The Commerce and the Caravans of the Western Sahara. Export Trade of Spain. Agriculture, Industry, and Commerce of Santander. Numerous Articles on Spanish Colonies, Trade, Finance, and general Geographical information.

Marseilles. *Bulletin de la Société de Géographie de Marseilles*. Tome XII. Nos. 1 to 4, 1888.—(1) Notice on "Samory." Fifteen Months among the Cannibals of Bangala. The Pagoda of Rangoon.—(2) The French Protectorate of Madagascar. The Trade Crossing the St. Gothard.—(3, 4) From Bangkok to Saigon.—(3) Necessity of Joining the Rhone with the Mediterranean Ports by Canals and Railways. Sidi Bargash Ben Said (Sultan of Zanzibar). Italian Expedition to Massowah. From Marseilles to Samarkand.—(4) West African Coasts. Siam Railways. To the East Coast of Africa. From Toulon to Point de Galle. The Moors of Senegal.—Proceedings of Society, List of Members, Necrology, Bibliography, Varieties, and a very Valuable Collection of Facts, Notes, Statistics, &c., arranged in geographical order—Europe, Africa, Asia, &c.

Metz. *X. Jahresbericht des Vereins für Erdkunde zu Metz für 1887-8*. 178pp. Three Months Among the Sioux Indians of Dakota. Street Life in China. The Scope and Limits of Anthropological Inquiry. The International Polar Expedition. Panama Canal. Hannibal's Expedition Across the Alps, with a sketch map. Togoland and the Cameroons. Submarine Earthquakes and Eruptions. From Metz to Constantinople. Our Earth in the Glacial Epoch.

Mexico. *Sociedad Mexicana de Geografía y Estadística*. *Apuntas Sobre Cayo Arenas* Formados par orden de la Sociedad de Geografía par su segundo Secretario Juan Orozco y Berra. 66pp. Two maps. 1886.

Mexico. *Boletín de la Sociedad de Geografía y Estadística de la República Mexicana* Cuarta Epoca. Tome I. Nos. 1, 2. 1888.—(1) Official Documents on the Arenas, and description of the Island, continued in No. 2, with numerous maps and plans.

Milan. *L'esplorazione Commerciale, della Società d'Esplorazione Commerciale in Africa*. Milano. 1888. 3rd year. Vol. III. Nos. 1 to 12 and supplement to No. 5 (No. 5 not received).—(1) A New Map of Africa, P. Vigoni. National Association to Succour the Italian Catholic Missions. The Commercial Importance of the Exports of Italy to the Island of Cyprus. Index to Vol. II. (map).—(1, &c.) Proceedings of the Society, Correspondence, and Short Notes and Articles of Commercial Value.—(1, 2) Stanley Expedition. Inauguration of a Bust to Count G. P. Porro.—(1, 2, &c.) Higher Ethiopia.—(1, 12) Inauguration of a course of Lectures on Commercial Geography and the Course of Lectures.—(2) Emigration Guide. The Foundation of the Independent State of the Congo. The Commercial Importance of Madagascar. European Articles Imported into Australia. Argentine, Uruguay, and Paraguay. Report of English Consul on the Use of Flannel in Japan.—(3) Abyssinia. The Italians in Africa. The Commerce of Zeilah. Uganda. The Theatre of War on the Red Sea: Massowah (picture map). (4) The Work of the Society in connection with Africa. Commerce and Industry of East Africa.—(4, 11) Australia and Italy.—(4, 12) Captain Casati and Emin

Bey.—(Supplement to No. 5) The Colonial Question, Address by the President, S. P. Vigoni.—(6) The Commerce of Berbera. The Products of Tripoli. The Kassai. The Commerce of Mexico. Wine in Egypt. A British Campaign in Africa.—(7) Italians in the River Plate and Paraguay. Resources and Economic State of Mexico. The Ramie in Louisiana.—(7, &c.) African Notes.—(7, 10, 11) The Western Sahara.—(8) West Africa: the Senegal (with map).—(9) The Todas, their Manners and Customs. The Bateki on the Congo. Italians in the South Pacific. The Timber Commerce of Egypt.—(10) The Transvaal. The Peninsula of Sinai. Wine Trade in Argentina.—(11) Suez. The Commerce of Italy with Trebizond.—(12) The Commerce of Italy with Java. The Province of Santa Fè (Argentina). Tunis. Italian Society of General Navigation.—(Supplement to January number) Map of Massowah, with Article thereon, and Notes on Massowah and North Abyssinia, by S. P. Vigoni.

Montpellier. Société Languedocienne de Géographie. Tome XI. 1st, 2nd, 3rd, and 4th quarterly parts, 1888.—(1) The Colony of Senegal (map of St. Louis). Central Africa and the Trans-Sahara. The Question of Morocco. The Atlantic-Mediterranean Canal. The Garenganzé Country. General and Historical Geography. Inauguration of a Bust to Paul Soleillet at Nîmes.—(1 &c.) Tables of Movements of Shipping in the Provincial Ports.—(2) The Province of Languedoc in 1789. Civilisation in Japan. Notes on English, American, Spanish, Portuguese, and Italian Geographical Journals. The Explorer, Charles Rabot.—(3) The National Congress on Geography at Bourg, 1888. Secondary Schools and Teaching at Montpellier. The Second Swedish Expedition to Greenland. Colonial Annual.—(4) Italy and the Red Sea (two maps). Retreat of the 10th Corps of the Grand Army from the Dwina to Duntzig. Col. Lambert in the Fouta-Djallon from MSS. (unedited). The Danube and the Baltic. Notes on Italian publications. The Cochin China Custom Houses.—(1, &c.) Varieties (shorter papers of great value). Geographical Chronicle. Proceedings of the Society. Necrology. List of Publications received and of Members.

Munich. Jahresbericht der Geographischen Gesellschaft in München. None received (see 1889).

Naples. Geografia Etnologica e Storica della Tripolitania, Cirenaica e Fezzan con cenni Sulla storia di queste regioni e sul Siltio della cirenaica. Napoli, 1888. 278 pages, by Professor F. Borsari, of Naples. This most scholarly book is an exhaustive Account of the Early Geography, Ethnology, and History of this part of North Africa, and is founded on profound knowledge of ancient writers, on Arabic MSS., and the Egyptian Records. The Society is highly honoured by the presentation of the Volume by the Professor.

Nancy. Société de Géographie de l'Est, Nancy. Nos. 1, 2, and 3, 1888.—Military Geography: (1) Ascent of Sinai in 1886 (map). (2 and 3) The Kan Ho. A Voyage from Tete to Yumbo. Historical Geography: (2 and 3) Arabian Documents on North Africa. Commercial Geography: (2 and 3) The Commercial Routes of China. Colonial Geography: (1) Description of Ain-Elarba (Oran) (plan). General Geography: (1, 2, and 3) The Oceanic Islands.—(2 and 3) Travels in South Morocco and the Western Sahara (map). (1, 2, and 3) Miscellaneous. Correspondence. Geographical Notes arranged: Europe and France, Africa, Asia, America, Oceania, and North Pole. Bibliography, Cartography, Necrology, Proceedings of the Society, List of Members and Short Notes and other information of Commercial and Scientific value.

Nantes. Société de Géographie Commerciale de Nantes. 1888. Parts 1, 2, 3, 4.—(1) Notes on Borneo. The Lobster Fisheries of Newfoundland. The Lobster Preserving Industry of Newfoundland. The Cod Fisheries of Newfoundland. From Brazzaville to the Sea.—(1, 2, 3, 4) Proceedings of the Society, Geographical Notes, Report, List of Members, and other information.—(2) Eight days in Portugal. Rules and Regulations relating to Immigration into Réunion. Report of the Committee appointed to prepare a scheme for the Instruction of young Commercial Men in Commercial Geography.—(3, 4) Report of the 10th Congress of French Geographical Society, held at Bourg, in 1888. The Mountains of the South-West Alpine region. Abyssinia and the Red Sea. The Forests of Guyane (French Guiana), with Botanical description and estimate of their Commercial Value.

- Neuchatel. Bulletin de la Société Neuchateloise de Géographie, Neuchatel. Vol. IV. 1888. Reference to pages. (1, &c.) Proceedings. The President's Report.—(17) The Dunes, their Formation and History, &c.—(36) A Visit to the Island of Maria (Tasmania).—(61) The Somali.—(96) Travels in the Bogos Country, Abyssinia.—(192) The Old Roads and the New Roads Laid with Val-de-Travers Material.—(203) The Seventh Congress of Swiss Geographical Societies, held 19th to 21st August, 1888. Reports, Addresses, &c.—(209) The Swiss at the Tenth French Geographical Congress at Bourg.—(221) Geographical Review of the Year 1888. By M. C. Knapp.—(265) Correspondence.—(277) Bibliography.—(283) The Commercial and Ethnographical Museum of the Society. Pictures, Products, Industries, Arts, Monies, Instruments, &c. List of Members, &c., and Index.
- New York. American Statistical Annual for the Year 1854. By R. S. Fisher, M.D., and Charles Colbey, A.M. Colton and Co., New York. 538pp. Tables.
- New York. Bulletin of the American Geographical Society, New York. Vol. XX. Nos. 1, 2, 3, 4, and Supplement.—(1) Recent Geographical Work of the World: President C. F. Daly. Ancient Cities of America (illustrated): Prof. F. A. Ober. Commercial Geography of the American Inter-Oceanic Canal: Lt.-Com. Stockton, U. S. N.—(1, 2, 3, 4) Geographical Notes (arranged and full of information): Mr. G. C. Hurlbut.—(1, 2, 4) Obituaries.—(2) Four days in Petra (many illustrations): Mr. W. B. Ogden. The City of Mexico: Hon. C. Pullen. The Origin of the name "America": Mr. G. C. Hurlbut. Who first saw the Labrador Coast? (maps, &c.): Prof. A. S. Packard. The Geographical Evolution of Labrador: Prof. A. S. Packard. Tierra del Fuego and the Sahara: Mr. E. R. Smith.—(2, 3) Washington Letter.—(3) Moscow the Magnificent (illustrated): Prof. W. Libbey, jun. Finistère, the Artist's Corner of Brittany: Mr. F. S. Dellenbaugh.—(3, 4) A Summer's Cruise to North Labrador (map and illustrations): Prof. Packard.—(4) China and its Progress (illustrated): Major Gen. H. Wilson. The Portuguese in the Track of Columbus: Dr. Valentini. The Past History of Vulcans: Prof. E. Chaix. Lake Mistassini: Mr. G. C. Hurlbut. The Philosophy of Glacier Motion: Prof. L. Rogers. The Problem of Inter-Oceanic Communication through the American Isthmus: Mr. A. de Gogorza.—The Supplement to Vol. XX. contains, Title Page and Index, Charter, Rules, List of Members, Additions to Library and Map Room, and Transactions for the Year 1888.
- New York. Science, New York. Nos. 257 to 308. 1888.—(257) Do Forests Influence Rainfall? Dr. H. Meyer's Ascent of Kilima-Ndjaru. The Flight of Birds. Eskimo and the Indian. The Study of Languages. Thomas Braidwood and the Deaf Mutes.—(258) Science Teaching in the Public Schools. Exploration: Transvaal, Zanzibar, Obangi. The Psychology of Joking. The Trinity Formation of Arkansas, Indian Territory, and Texas. The Eskimo Ring Finger.—(259) The U. S. Hydrographic Office. The Growth of Children. The Teaching of Drawing. Case School of Applied Science. Ethnology: Researches in South-Eastern Spain, Prehistoric Skating. A Plea for the Training of the Hand. The Manual Training School. The Snow Snake.—(260) The People of South-Eastern Europe (map). The Psychology of Handwriting. The Iroquois Beach; a Chapter in the History of Lake Ontario. Weather Predictions. Is there a Venomous Lizard?—(261) Sanitary Supervision of Schoolhouses and Pupils. Asa Gray. Sex and Consumption. Bacteriology as a Study in Schools.—(262) Exploration in the Dominion of Canada, 1886. Stanley's Expedition. Antarctic Regions. Transcontinental Railroads.—(263) Science in Elementary Schools. The Improvement of Harbour Entrances. Notes on the Geography of Labrador. Animal Magnetism. Natural Resources of the United States. Catalogue of the Pedagogical Library, Philadelphia.—(264) Tibet and Nepal.—(265) Gas Engines and Windmills for Electric Lighting. Christmas Customs in Newfoundland. Is the Rainfall Increasing on the Plains? The Constituents of Sugar. Irish Myths and Folk Tales. Notes (Ethnological) on the Kwakiol of Vancouver Island. Vermen Eaters. Great Waterfalls, Cataracts, and Geysers. Chips from the Earth's Crust. Mineral Resources of the United States.—(266) The National Electric Light Convention. Evolution in Civilised Man. The Density of the Earth. Diamonds in Meteorites. Indian Wrist Guards. Notes on the Geology of the Cascade Range.—(267) One Year of Inter-State Commerce Control. Unconscious Cerebration. The Orbus Pictus of John Ames Comenius. The Art of Projecting. Effect of Pressure on Ice. Dried Heads amongst the Jivaros.—(268) Zuhí Mythology and Religion. Obscure and Conflicting Phenomena of Drift North of

Lake Ontario. The Pristine Home of the Indian Tribes of this Continent.—(269) Exhibition of School Work in Philadelphia. Water Spouts off the Atlantic Coast of the United States. The Flow of Solids. Dynamite Guns.—(270) The Sonora Earthquake. The Long White Mountain. The Doctrine of Descent. Temperature of the Saco River.—(271) The Charleston Earthquake. School of Mechanic Arts at the Alabama Polytechnic Institute. Psychic Disturbances in Russia.—(272) Yukon Expedition in 1887. The Geological Observations of the Yukon Expedition of 1887. Detection of Adulteration of Lards. Algonkin Metalsmiths. The Siana Indians. Leprosy in America.—(273) Serpent Mound. An Ethnographical Collection from Alaska. Indian Graves. Yankee Girls in Zululand. Education in Bavaria.—(274) The Pecuniary Economy of Food. Copper, Lead, and Zinc. Practical Geography for Schools.—(276) The Agricultural Value of the Mackenzie Region. The Obangi-Welle. Dictionary of North American Indian Tribes.—(277) News from Central Africa. An Elementary Geography of the British Isles. Stieler's Hand Atlas. The Ohio Mounds.—(278) The Yellowstone National Park. A New Science of Mind. Aboriginal Architecture in the South-West. Explorations in Greenland. Collections of Jewels and Precious Stones. An Unusual Auroral Bow.—(279) Indian Jugglery. Sea Sickness. A Leper Institution of the United States. Race and Insanity. Negro Myths from the Georgia Coast.—(280) The Crenitic Hypothesis and Mountain Building. Fine Specimens of Serpentine at Washington. Objibwa Pictographs in the West. Yellow Fever in Florida. Bradley's Atlas of the World.—(281) The Science of Names. The Ethnic Position of the Basque Nation. The Great March Blizzard. The Tendency of Population to Drift to Cities as shown in Australia. Wheat Cultivation. Drunkenness as a Disease. The Social Influence of Christianity. The Ancient Works of Ohio.—(283) The Temperature of the Sun and its Heat Radiation. The Washington Scientific Societies. Micmac Pictographs. Photographs of Lightning Flashes.—(284) Negro Dialects. Object Lessons in Oriental Faiths and Myths.—(285) Iroquois Mythology. Models of the Bed of the Ocean. The Animal Life of our Sea Shores. Onondaga White Dog Feast.—(286) The Mineral Resources of Ontario. The Hemenway-Cushing Expedition to Arizona. The Impartial Study of Politics. The Solution of Municipal Rapid (Electric) Transit. The Psychology of Spiritualism. The Constitution of the United States.—(287) Proposed Railways in Asia Minor. The United States Geological Survey Topographic Maps. Turner's Explorations in Alaska. The Use of the Microscope as a Practical Test for Oleomargarine.—(288) The Captives of the Mahdi. The Census Maps of the United States. How a Mound was Built. The Pilot Chart of the North Atlantic Ocean. Native Birds.—(289) The International Congress of Americanists. The History of a Doctrine. The Physical Aspect of the Planet Mars. The Philippine Islands.—(290) The Cutting Power of Rivers. The Study of Statistics in America. Motions of the Solar System.—(291) Quack Advertising in the Religious Newspapers. Recent Developments in Great Circle Sailing. Sanitation in India.—(292) The Mining Districts of Arkansas. Forests in South Africa. How to Study Geography. Explorations of the Xingu. Effigy Mounds in Northern Illinois. The Coal Measures of Kansas. Radiant Energy.—(293) Hanging as a Method of Execution. On the Alleged Mongolian Affinities of the American Race. On the Causes of Variation in Organic Forms. The Eruption of Bantaisan. A Magnetic Survey of Japan. Exploration in the Congo Free State: the Kassai. Mississauga Etymology. The Limit of Drift. A Brilliant Meteor.—(294) The Annual Ring in Trees. Ethnology: Tattooing. A Recent Discovery in Egypt. Eclectic Physical Geography. Old and New Lessons in Astronomy. The Corean Potter's Wheel. Poison Apparatus of the Mosquito.—(295) The Origin and Development of Language. Operations of the National Survey. Geology: Archaeo-Glacial. Recent Changes in the Magnetic Declination in Lower California. Archaeological Remains in the Costa Cuca (Guatemala). (296) Hudson Bay Route. The Location of the Nicaragua Ship Canal. The Influence of Light upon Tree Growth. The Prehistoric Race of Spain. The Evolution of Ornaments. The Aryan Race. The Essentials of Geography. Chalchinitl: a Note on the Jadeite Discussion. Physical Exercise among Celestials. Psychic Effects of Hasheesh.—(297) The State of Affairs in Central Africa (October, 1888). The International Geological Congress. The Human Heart an Electric Battery. The "King Devil." Bokhara and the Transcaspian Railroad. Mining Industries of New Zealand. Intellect in Great Britain.—(298) Statistics of

Marriage and Divorce in the United States. The Topographic Map of New Jersey. Tissot's Theory of the Projection of Maps. The Neglect of Native Fruit Plants in California.—(299) The Eruption of Krakatoa. Use of Tobacco.—(300) The Laws of Hydraulic Degradation. The Care of our Forests. Tales of the Birds. Buffalo on the Texas Plains.—(303) The Influence of Forests on the Quantity and Frequency of Rainfall. The Mental Powers of the Ape. Electric Street Railways. A Telescope for the New Astronomy.—(304) Surveys, their Kinds and Purposes: Geodetic, Geologic, Topographic (Ordinary and Military), Agricultural, Magnetic, Nautical (Hydrographic and Physical).—(305) Garbage Cremation (several articles, with illustrations). The Soaring of Birds. Human Beasts of Burden. A Queer Game among the Navajo. The Obi Railroad.—(306) Electric Propulsion (illustrated). Hadfield's Manganese Steel. Musical Boxes. Portrait of Agassiz. The Pollution of Water Supplies. The Homing Instinct. The Claims of the English Language to Universality.—(307) The Hauss Electric Railway (illustrations). Philosophy and Specialities. Causes of Configuration in Trees. How some Eskimo Measure. Tales from Venezuela. The Races of the Babylonian Empire. Submarine Boats. The Great Mackenzie Basin. Synclinal Mountains and Anti-clinal Valleys.—(308) The McAuley Process of Burning Pulverised Fuel (illustrated). Profiles of the Nicaragua and Panama Canals (illustrated). The Sprague Electric Road at Boston (illustrated). The Advances of Electricity in 1888. The Scientific Work of the Johns Hopkins University. Objibwa Folk Lore. Teton Folk Lore. Baldness. The Spread of Mohammedanism in Africa and the Slave Trade, with map.—Papers of considerable interest on Electricity, Medicine, Health Matters, Mental Science, Book Reviews, Notes and News, Letters to the Editor on a variety of scientific subjects, and a vast amount of most valuable information beyond that which is here indicated will be found in this journal. The paper is often illustrated with engravings, maps, &c.

Oran, Algeria. Société de Géographie et d'Archéologie de la Province d'Oran. Oran, Algeria. Tome VIII. No 36, January to March. Nos. 37-38, April to September, No. 39, November, December. 1888.—(36) The Sahara-Niger or Trans-Sahara. Correspondence. Commercial Statistics. Movements of Commerce. The Ports of Oran in the year 1887.—(36-39) Monograph of the District of Tlemcen (illustrated). (36, 39) Unpublished Inscriptions of the Province of Oran.—(37, 38) Fez: its University and Superior Mussulman School. Nemours: its Port, the Extension of its Commerce, and its Future (and 39).—Contribution to a Record of the Money Struck by the Mussulman Dynasties of the North of Africa (illustrated). The Work of the Society in 1887-8: Report. Congress of Geography at Paris in 1889.—(39) On the Progress of Science from a Maritime Point of View. History and Mineralogy. Genealogical Notes upon Moulay Hassan, Emperor of Morocco. Exhibition of Works of Interest having relation to Penal Work. Discovery of a Prehistoric Station at Oued-Imbert. Bibliography. Proceedings of the Society. New Members, &c. Editor's address (with numerous maps, plans, and illustrations).

Orotava, Teneriffe. Prospectus of Orotava Grand Hotel Company Limited. 1887. Views and map.

Paris. Bulletin de la Société Académique Indo-Chinoise de France.—None received.

Paris. Bulletin de la Société de Topographie de France. 12th year. Nos. 1-3, 4-6, 7-9, 10-12, 1888.—(1-3) General Perrier, the Chief of the Geographic Service of the Army. M. Hayden, United States Geologist. The New Surveying Compass of Lieut.-Colonel Peigné. Military Topography. The Three French Princes of the 18th Century (Louis XVI., Louis XVIII., and Charles X.) and their Geographical Education. Project for the Construction of a Commercial and Military Port at Cabourg (plan). Lucan and Palawan (Philippine Islands). (4-6) A Professor and a Course of Geography at the end of the reign of Louis XIII. French Interests in Morocco. The Water of Lake Neufchatel brought to Paris. The Present State and Work on the Panama Canal. Excursions of the Society: Argenteuil, Montmorency.—(7-9) The Senegal and Niger from 1748 to 1888. The Teaching of Geology and of Topography in the Elementary Schools. M. A. Lehagre's Treatise on Topography. The Origin of the Cadastral Survey of France.—(10-12) Toponymy and Topography. Ethnography and the Fine Arts, or the Study of Peoples and their Countries through the Arts of Design. Stan-

ley's Mission and European Enterprises in Central Africa. Society of Travellers proposed in 1757 by Haenir.—(1-3, &c.) Proceedings of the Society, Distribution of Prizes, Correspondence, New Members, &c., &c.

Paris. La Province, organe de l'Académie des Lettres, Science et Arts. Editor, M. L. Duc. None received.

Paris. La Chronique Géographique Mensuelles. Editor, M. L. Bigot. January, February, March, and April, August, September, and October, November and December, 1888.—Geographical Chronicle: German Emigration, African News, Travels and Explorers, News of Asia, Exploration in America, News from Oceania and from the Polar Regions, Our American "Uncle," The Death of James de Brazza, An Economic Revolution, Italy and the Extreme East, The Austrian Lloyds, General Annenkov and his Work, The Caspian and Afghanistan, The Death of Stanley, Mont St. Michael, St. Malo, Dinard, &c., With the Engineers, and other Short Notes.

Paris. Bulletin de la Société de Géographie Rédigé avec le concours de la Section de Publication par les Secrétaires de la Commission Centrale. Tome IX. 1st, 2nd, 3rd, and 4th quarterly parts, 1888.—(1) Report on the Work of the Society of Geography and on the Progress of Geographic Science during the year 1887. By M. Ch. Maunoir. (With many small maps in text.) Centenary of the Death of La Pérouse celebrated the 20th April, 1888.—(2) Portraits of Barthélemy de Lesseps, and Count de La Pérouse (map of voyages 1785 to 1788, and other illustrations).—(3) Report on the Prizes given by the Society and Meeting to distribute them, with Addresses, &c. Exploration in Sahara and South Morocco. By M. C. Douls (map). Reply to General Walker on the Rivers of Tibet, Burmah, and China. By M. J. L. Dutreuil de Rhins (map). Study on the Density of the Population of France in Communes. By M. V. Turquan (map).—(3, 4) New Researches on the Origin of the Name America. M. J. Marcon.—(4) The Euphrates Valley Railway, with maps in text. The Isle of Réunion. By M. A. Blondel (illustrations, dredging machines, views of ports, &c., &c.). Projected Port at Cabourg (plan).

Paris. Société de Géographie. Proceedings of the Society. Nos. 1 to 15, 1888.—(1) The Euphrates Valley Railway. Underground Waters Anciently and at the Present Time. The Chevalier de Butet's Travels in the Mediterranean in 1783. The Last Explorations in New Guinea of the Missionaries of the Sacré-cœur, and the Discovery of a New River, the St. Joseph. Meteorologic Photographs on the Pic du Midi.—(1, &c.) Proceedings of the Society, Admission of New Members, Reports, Addresses to the Society, Additions to the Library, Notes and Short Communications and Correspondence (illustrated with maps and views in the text, and many maps.) Geographical News arranged by Continents, &c. Index to previous volume. Reception of MM. Bonvalot, Capus, and Pépin.—(2) Travels in Central Asia and the Pamir. Voyage to the Port of Timbuktu (map).—(2) The Travels of M. F. Coillard in Africa. Jacques Cartier (documents and facts). The Railway Bridge across the Oxus. Mr. G. A. Krause's Travels in West Africa.—(4) Five Years of Scientific Research in the Canaries. The New Port of Cabourg. Map of the Niger from Nananbougu to Timbuktu, 1/2,000,000.—(5) The Solomon Islands. The Tonquin-Chinese Frontier in the Gulf of Tonquin. The Origin of the Name Sénégal, Gambia and Casamance. The First Explorers of the French Soudan. Alexander Vaudey, A. and J. Poncet.—(6) The Variations of the Bed of the Hoang-ho. Voyage to Timbuktu by the Higher Niger, and Reception of Lieut. Caron by the Society.—(7-8) Notes on Tashkend. The Chinese Calendar, by M. T. de Quarenghi. The Unification of the Calendar, by M. T. de Quarenghi. Through South America from the Pacific to Para, in 1886-7.—(9-11) Solemn Meeting of the Society on the Centenary of the Death of La Pérouse, address by Count de Lesseps.—(12) The German People, their Power and Resources. The Reform of the Calendar, by M. G. Armelin.—(12-14) Geographical Corrections required by the last Publications of Missionaries.—(13) The Scientific Value of the Gregorian Calendar, by M. T. de Quarenghi. The Lakes of the Island of St. Miguel (Azores) map. The Island of Mohéli (Comoro Islands).—(14) The Lakes in the County of Perth (Scotland). Note on the Coast of Malaquetta (Guinea). Report on the Levels of the Kouilou-Mari, by M. Jakob, of the Lower Congo (sketch). Study of the People of Djebel Ousslet, by M. Paty de Clam.—(15) Bamako (Higher Niger) and the Surrounding Country (map).

Paris. Bulletin de la Société de Géographie Commerciale de Paris. Tome X., 1887-8. Nos. 1 to 7. Editor, M. Gauthiot, Secretary General.—(1) Report on the Society. Travels in Venezuela and the Basin of the Orinoco, by M. Chaffanjon. Algeria and Tunis. An Excursion to the Marqueses Islands. The Management of the Indians in Guyane. The Canal between Manchester and Liverpool. Tulleur, the Port, Commerce, and Resources (west coast of Madagascar). The Export Trade of the Argentine Republic. The Loyalty Islands. Economic Condition of Tonquin. M. Cotteau's Last Journeys in Asia. The Sultanate of Zanzibar and French Interests.—(1, &c.) Proceedings of the Society. Bibliography (very extensive and valuable, chiefly relating to Commercial Geography): the notices of books are arranged geographically, and at the close of each class of notices a full Bibliography is given of books relating to that class which have been published since the previous notice. Correspondence from all Quarters of the Globe on Commercial Matters.—(2) Excursion to the Færö and Hebrides Islands. Excursion to Quang-Nghia and Binh-dinh in Annam (map). The Republic of Uruguay (tables). The Tunis Exhibition. The St. Charles Orphanage at Beyrout. Exportation of Manufactured Articles by France, England, Germany, Austria, and Belgium. The Ramie—a new material for textiles, description, &c. The Ramie in Tonquin.—(3) French Indo-China. Social Life in the Argentine Republic. The Caravans of the Western Soudan and the Fisheries of Arguin (map). The Commercial Conquest of the French Soudan (map of West Soudan). France in the Pacific and on the African Coasts. From Bangkok to Saigon by the Mekong. The Saint Gothard Railway and the Port of Genoa. Fauna and Flora of Bolivia. A New Therapeutic Substance. In Central America. In New Zealand.—(4) Caucasus and Transcaspia (with illustrations and map). The Canary Islands, Actual State and Commerce. Commercial Routes across Central Asia. Impressions of Travel in Algeria. The Island of Reunion: its Productions. The Island of Samos. The Port of Cabourg (with plan). A New Artesian Well in Australia. The Ramie in the Maritime Alps. The City and Commerce of Batoum. The Vegetable Oils in Algeria. The Freedmen in New Caledonia. From the Loyalty Islands to New Caledonia. In New Guinea. By Mr. J. P. Thomson, of Brisbane. (5) Mesopotamia and Persia. French Commerce and the Culture of Oil Seeds in Algeria. The Frontier of Morocco (with maps and illustrations). The South African Republic. Native Farmers in Tonquin. Questions for Discussion at the National Congress at Bourg in 1888. From Paris to Constantinople and to Salonica by railway. Autumn Travels in Siberia. The French in Syria. The English in Egypt. Report of the Prizes given by the Society in 1887.—(6) French Politics in the Society Islands. Roads in Cochin China (map). The New Hebrides: Physical and Medical Geography, Population, Products, and Commerce. The Gutta-Percha of Cambodia. Western Soudan: the Vertebrate Animals found in the Rivers of the South and in Senegambia. The Navigability of the Red River, Tonquin. The Emigration into Canada of French-speaking Peoples. (7) Our Algerian Empire. Travels in the Peruvian Cordilleras. Mexico. From the Oxus to Samarcand. The North-East Coast of Tonquin, &c. To Darien: Aspect of the Country. The French-Spanish Litigation in the Gulf of Guinea (map). The Comoro Islands. From Senegal to Sierra Leone.

Paris. Revue Géographique Internationale. Edited by M. G. Renaud. Nos. 147, 148, 149, and 151 to 158, 1888.—(147) M. Thouar in the Chaco (map). The Chesterfield Islands. Importance of Mascara. The Commencement of our Protectorate and of our Occupation of Tunis. The Muongs (Tonquin) illustrated. The Hovas, the English, and the French, with the consequences of the last Treaty (map). Chili: Animals, Administrative Divisions, the principal Cities, &c. (six engravings). Iceland (with map in text). The Russians in Central Asia (3 engravings).—(147, &c.) France and Foreign Countries: the Economists at the Congress of Toulouse, &c. The Austrian Expedition to the Kongo. Tunis—Historical Geography by M. P. du Clam. Geographical News, Notes, Politics, Facts, Illustrations, Statistics, &c., &c. Bulletin of Explorations and Notes on Explorers (with many illustrations). Necrology: MM. E. Yung, Dr. Dalby, Spencer Fullerton Baird (Alpinists who died in 1887), Dr. Place, General Perrier, Jacques de Brazza, D. Clay, Asa. Gray, Léoné Levi, Emile Boss. Bibliography. The Journal is full of maps, views, sketches, and illustrations, and is a very important collection of facts dealing with the subject of Geography in all its bearings. It is not possible to do more than mention some of the principal papers and some poetry.—(147, 148) Astronomic Photography (Photograph of

- Sun).—(148) Polar Expeditions from about 1882 (map). Incompatibility of Naturalising the Indigenous Population of Algeria with Islam. Routes from Birmanah and Tonquin to the Yunnan and Szé-Tehouen. Examination of the Clauses of the Madagascar Treaty. The Passes of the Carpathians (map). Railways in India. The New Frontiers of Chili (4 engravings).—(148, &c.) Seven Years in Central Africa, by Dr. Junker.—(148-149, &c., &c.) The products of the Basin of the Orinoco (map).—(149) M. Constans and Tonquin. The French Administration of Tunis and French Commerce. Return to Banana (illustrated). The Census of 1885 in Provinces and Departments (4 illustrations). Meteorological Questions.—(149, &c.) Graphic Statistics (two maps in colours).—(150) Ain-Sefra and the Trans-Sahara. The Port of Odessa. Chili: Railways, Public Instruction, Budget, Finances, Commerce, Navy, &c. (4 engravings). The Swiss Lakes.—(151) Col. Laussedat's Address at the Oran Congress. The Technical Arts in the United States, and in Algeria. Petroleum in Algeria. French-Chinese Convention of the 27th June, 1887, relating to Tonquin. The Rapids of the Higher Me-Kong. Voyage to the Philippines. Action of Oil upon Sea Waves. Mythological Subjects (4 illustrations).—(150, 151, &c.) The Commerce of Madagascar and Commercial Information.—(151, &c.) French Alpine Club. Emin Pasha's Last Travels to Lado and Monbutta.—(152) Spanish Custom House.—(152, &c.) Of Curves of Level in Statistics.—(153) The Velocipede and Geography. Voyage to the Isle of Staffa (map and two engravings). Darfur under General Gordon.—(154, 155) Barcelona and Valencia. Prince Roland Bonaparte in Canada. M. Condrean in Guyane. Tumne-Humacs. The Abuses of the Customs in Tunis. The Commerce of Madagascar in 1887. Orography and Hydrography of the Vosges. The Soil of France. Valencia and Cartagena. The Organisation of Tonquin.—(154, 155, &c.) Militia (several articles on) in Tonquin. The Europeans and the Tax in Egypt. From Dijon to Cartagena. Letter on African Slavery (engravings).—(156) The Exports of Roumania in 1887 and Port Entries. Mont Blanc. From Cartagena to Oran. The Transatlantic Company. Instantaneous Photography.—(156, &c.) The Pamir from the latest Explorations.—(157) Resources of the Province of Oran. Report on the Tunis Budget, 1888-9. Progress of Colonisation in Tonquin. The Red Arrow Gate of Corea (illustrated). Where is Stanley?—(157, 158, &c.) The Alps (map) by Colonel Noix. Two Days in the Rousses Chain.—(158) The Progress of Oran and Information. The Kingdom of the Sadangs. The Ainos (engraving and map). Missions to the Jorubu (engraving). The Isothermic Lines of 1886 (illustrated).
- Paris. Notices sur la Carte d'Afrique au 1/2,000,000e 1st Livraison, 1885; 2nd, 1884; 3rd, 1884; 4th, 1884; 5th, 1886. Published (with map of sixty sheets) by the Minister of War for the Geographical Service of the French Army.
- Paris. Cadran, de l'Heure Universelle, ou du Meridien Initial. Combinée avec l'heure locale, pour toutes les horloges et à toutes les longitudes. Avec la liste des Longitudes des Principales Localités du Monde. D'après le Meridien International de Jerusalem. Pages 31.
- Paris. La Géographie. Edited by M. C. Bayle. Nos. 1, 2, 3, 4, 5. 1888.—This is a new geographical newspaper, published in Paris, and is full of interesting matter, discussing freely the political bearing of geographical questions on international relations, and is somewhat severe on English colonisation and foreign policy. (1) The Prime Meridian Universal. French Alpine Club. Terrestrial Globe, 40 mètres (about 132ft.) in circumference. Higher School of War. Royal Society of Canada. Practical Commercial Geography: a Manual. Volcanic Eruption in Japan. To Siberia by the Kara Sea (Wiggins's expedition). A Geographical Bureau or Minister of Marine and the Colonies, the necessity and urgency of. Raratonga, England Still Annexing, Consequence of our Geographical Ignorance, Considerable Prejudice against French Commerce. The Work of France in Africa: The Senegal. National Congress of Geography in 1888. International Congress of Geography in 1889. German Geography. Geographic Service of the Year.—(1, 2) Geodetic Conference in 1889.—(1, 2, 3) Explorers and Explorations.—(1, 3) The Academy of Sciences.—(1, 2, 3, 4, 5) Political Geography: Russia and Abyssinia, England and Africa, the Germans at Zanzibar and the Marshall Islands. Italy at Zoulah, &c. A New German Society of Pondoland. Baron Lahure's Researches in the Sahara a Secret Mission, &c. Economic Geography. Railways in China. The World's Railways and Canals. The Manchester Canal, &c. Geographical Societies, Reports of Meetings. Cartography. Bibliography.—(2)

Hydrographic Service of the Navy. The Subsidence of a Portion of the Soil of France. Maddalena. The Ascent of the Grand Mulets. Is Stanley Dead? The Independent State of the Congo and Division into Eleven Districts by Royal Decree: Banana, Boma, Matadi, Cataracts, Stanley Pool, Kassai, The Equator, Ubangi and Welle, the Aruwihini and Welle, Stanley Falls, and Loulaba. The Ignorance of Geography. The Geographical Awakening.—(2, 4, 5) Military Geography.—(3) Geographical Service of the Year. Charles Soller (with portrait as an Arab). The Meuse and the Oise, and the German Invasion. Obock. The Question of Easter Island. Caravan Routes in Western Sahara, by C. Soller (map).—(4) The Island of Mananzary. The Region of the Limestone Plateaus (Causses). The National Defence on the Mediterranean. The Yang-Tse-Kiang and its Opening to French Commerce. In Algeria. Frontier of the Alps. The Prestige of France in Morocco. Latin-America and the Exhibition of 1889. Oceania, Maritime Preparations for the Opening of the Panama Canal.—(4, 5) Correspondence. (5) International Institute of Geography. Central Asia and Railroads (map and view of the Amou-Daria Bridge). Guyane: Rights of France in the Tapahani, &c., District. Dr. Hahn in Cambodia. Through the Chaco. Three Frenchmen through the Pamir (portraits and views). University Bulletin. Journals and Reviews.

Rio de Janeiro. Revista de Secção da Sociedade de Geographia de Lisboa no Brazil. Editor, Dr. A. Z. Candido. None received.

Rocheport. Bulletin de la Société de Géographie de Rocheport. Tome IX., No. 3, January to March; No. 4, April to June. Tome X., No. 1, July to September. The Communications between the Higher Mekong and Annam and Tonquin (map). The Waters of the Globe: The Atlantic, the Indian Ocean. Gold and Silver, and the rôle as Money, by M. Martineau, of Rocheport. Travels in Africa, by Mr. Trivier—the Gaboon.—(3) The Centenary of La Pérouse. Projected Travel in Equatorial Africa.—(3-4) Impressions of an Artist on a Voyage to Annam and Tonquin, by M. G. Rouillet (6 views). Geographical News and Notes arranged under the headings of Asia, Africa, the Two Americas, Oceania.—(3, 4, 1) Proceedings of the Society, with Short Notes of Various Papers of Interest read at the meetings.—(4) The Proposed Organisation of French Indo-China. The Ravages of the Locust in the Environs of Rocheport in 1888. The Alliance to Propagate the French Language in the Colonies and Abroad. Documents on the History of French Commerce in Turkey. Correspondence. Index to Vol. 9.

Rome. Bollettino della Società Geografica Italiana. Roma. Series III., Vol. 1. (Year XXII., Vol. XXV.) Nos. 1 to 12, 1888.—(1) List of Members. V. Ragazzi da Antoto in Harar, Sketches of Mountains and Tables (map of Shoa and Harar, 1/1,000,000. Summary (analysis) of Geographical Publications, Journals, Reviews, &c., &c., Italian Journals, Foreign Journals.—(1, &c.) Proceedings of the Society, Reports, Finances, &c., &c. Geographical Notes, News, Statistics. General Geography: Europe, Asia, Africa, America, Oceania, Polar Regions.—(2) Traversi's Travels in East Africa (2 mountain profiles and map). Swedish Emigration (tables). Professor F. Umlauf's New Work on the Alps (with 95 illustrations and 20 maps) by Prof. Marinella. Chronicle of the Prehistoric and Ethnographic Museum at Rome.—(2-3) From Agram to Constantinople by Belgrade and Bucharest (statistical tables).—(3) The Superfices and Population of Ethiopia (tables). Recent Naval Cartography at Paris, London, and Florence. Death of Giacomo di Brazza.—(3, 4, 5) Roman Geography and the Vatican "Mappemonde" (numerous sketches in text).—(4) The History of Italian Missions and Traders in the East. Italian Interests in the East. The Corinth Canal (map, plans, and sections).—(5) The Movement of the Earth, Geographical and Chronological Problems, with diagrams. Durazzo's Map of Massowah and Saati (map).—(5, 6) Origin of the word "America."—(6) The 14th Centenary of the Discovery of America in 1892. Christopher Columbus and Savona? The Climate of Let-Marefà in Schoa (tables and diagram) Against European Immigration into the Higher Orinoco. The Teaching of Geography in Secondary Schools (tables and examples).—(7) Leonard Fea's Travels in Tenasserim in 1887-8 (map and sketches of scenery, caves, natural history, ethnography, &c., in text).—(8) Italy in Abyssinia. Proposals to the Minister of Public Instruction for a New System of Teaching Geography in Secondary or Middle Schools. (8-9) E. Stradellis' Travels on the Higher Orinoco (map and numerous illustrations, plans, houses, arms, utensils, ornaments, &c., in text).—(8, 9, 10, 11)

Letter from Harar.—(9) Leonard Fea among the Independent Karens. Burmah (map and illustrations in text). The Longitude of Monte Maria and the Roman College. The Reform of the Gregorian Calendar, by Sen. A. S. Cuiffa. Fogliani-Roggero's Geography and Map.—(9, 10, 11) Madagascar: The Country, Geology, Races, Caste, Institutions, Civil Life, Animals, Useful Plants, Manners and Customs, Towns, &c., map, 1/1,000,000, by Senor E. Cortese.—(10, 11) Rules of the Society. Death of S. e il Comm. Cesare Correnti. Excursion to Ghinna (Shoa) by Traversi (views, figures of the people of Ghinna in text). Volcanoes and Earthquakes in the Central American Isthmus (map in text). Emin Pasha and Captain Casati.—(12) Questions relating to Emigration, formulated by the Geographical Society of Italy. Western Soudan, its Language and History, by Professor Basset, reviewed by Professor Porsena. Galle's Map of Italy.

Presented to the Society by Senor L. Bodio, Minister of Statistics
for the Kingdom of Italy:—

Rome. Bulletin de L'Institut International de Statistique. Tome 2, 1st and 2nd part, year 1887; tome 3, 1st part, year 1888.

Introduction to the Commercial Balances for 1885. Rome, 1887. The Commercial Balances for 1885. Rome, 1887.

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Statistica Guidiziaria: Penal for year 1885. Rome, 1887. Penal for year 1886.

Introduction (maps). Rome, 1888.

Annual Statistics of Italy for 1887-8. Rome, 1888. 1290pp.

Statistics of Charity and Cost of Benevolence, 1881-5, Vol. 2, Lombardy, 654pp. Rome. Ditto, Vol. 3, Venice, 450pp. Rome, 1887.

List of Statistical Publications, by the Ministry of Agriculture, Industry, and Commerce, from 1861 to 1887.

Civil and Military Pensions from 1882 to 1885.

Civil and Military Administration, 1886, and Pensions, 1884-5. Rome, 1887.

Emigration. Statistics of Italian Emigration for the year 1886. Rome, 1887.

Do. for the year 1887, compared with the emigration from the rest of Europe. Rome, 1888.

From the Italian Statistics for 1886. Statistics of the following: Topography and Rivers. Religion. Prisons. Instruction (education). Sanitary. Textiles. Foreign Commerce. Mercantile Marine. War Navy. Navigation of the Port of Italy. Population. Climate. Public Works. Army. Finances of Provinces and Communes. Societies for Mutual Help and Benevolence (co-operative societies). Electoral. Money and Credit. Justice for year 1885. Finances of the State for 1886. Productive Debt. Agriculture and Cattle. Prices of some principal Food Stuffs in 1885.

Annali di Statistica, Deaf Mutes, 1887 and 1888. Annali di Statistica, Industrial Statistics for (iv.) Treviso (maps), (v.) Bologna (maps), (vi.) Lucca (maps), (vii.) Mantua (maps), (viii.) Sondrio (maps), (ix.) Catania (maps), (x.) Leghorn (maps), (xi.) Sardinia (maps), (xii.) Salerno (maps), (xiv.) Cremona (maps), Summary of Engineering Establishments, &c., of Italy.

Statistics of Electoral Distribution, May, 1886. Statistics of Causes of Death in Provinces, and of Violent Deaths throughout the Kingdom, for year 1885.

Statistics of Communal and Provincial Debts, 31st year, 1885. Introduction, 1888. Statistics of Newspaper Stamps and Stamps for Periodicals. The Newspaper Press of Italy for the year 1887, published 1888.

Population. Changes in the Civil State by Births, Marriages, and Deaths, year twenty-five, 1886. Introduction, 1887. Statistics of Italy. The Quinquennial (1881-5) Statement of the Condition of Benefit Societies. Introduction, Liguria. Rome, 1887.

Rouen. Société Normand de Géographie, Rouen. Bulletin: Tenth Year, No. 1 January and February; No. 2, March and April; No. 3, May and June; No. 4, July and August; No. 5, September and October; No. 6, November and December.—(1) List of Members of the Society. Treasurer's Report. Travels in the Western Sahara and South Morocco, by M. C. Douls (portrait and map). West Africa: Voyage of Captain M. Decazes—the Gaboon, the Congo (map of French Congo). Travels on the Rio Branco to the Mountains of the Moon.—(1, 2, 3, 4, 5) Proceedings of the Society, by M. A. Sansom.—(1, 2, 3, 4, 5, 6) Correspondence and Geographical News, Notes, and Statistics, by M. Ch. Lamette.—(2) The Canary Archipelago, Past and Present. Palestine: The Red Sea, the Jordan, the

- Valley of the Jordan, Jerusalem, Tiberias, the Lake of Tiberias (map) —(2, 3, 4, 6) Bibliography.—(3) The Italian Army. The Soil of France, Mountains and Plains. The French in Guyane.—(3, 4, 5, 6) History of Peter Berthelot, pilot and cosmographer of the King of Portugal to the East Indies—born in Normandy, 1600; died at Achen, 1638 (portraits).—(4) Discourse pronounced by M. J. Félix upon the Inauguration of a Bust of Paul Soleillet, the explorer, at Nîmes. French Interests in the Extreme East.—(5) Biographical and Bibliographical Notice of M. D'Avezac, the celebrated geographer, by M. G. Gravier. (Mappe Monde de l'Anonyme de Ravenne dressée par M. J. Gravier sur les données de M. D'Avezac.) (6) Necrology: M. Levy A. Cohen. A Soirée at the house of Senoussi. Souvenirs of a Voyage from Hanoi to Peking in 1887. Index, &c.
- St. Nazaire. Bulletin de la Société de Géographie et des Musée Commercial de St. Nazaire. Tome V., 1883, 104pp.—Administration of the Society. List of Members. The Marquis Duplex, Governor-General of the Indies, by M. Gallet. The Riches of Chilé, by M. Castonnet des Fosses.—The Utility of a Canal between the Atlantic and the Mediterranean. M. Kerviler.—Mémoire of the St. Nazaire Chamber of Commerce to M. Simon in opposition to the proposal of the Chamber of Commerce of Nantes, which proposes to obtain the right to levy tonnage dues on all vessels entering the Loire, in view of the completion of a Ship Canal from Nantes to the Sea. Report of the Tenth Session of the National Congress of Geography. The Mineralogy of the environs of St. Nazaire. M. C. Baret.—International Congress of Learned Societies at Paris in 1889 (programme). News and Notes, Geographical. Bibliography.
- St. Petersburg. Otchet Imperatorskova Russkova Geographicheskova Obshchestva. Za 1887 god. (Report of the Imperial Russian Geographical Society for the year 1887.) St. Petersburg, 1888.
- St. Petersburg. Izvestiya Imperatorskova Russkova Geographicheskova Obshchestva. (Journal of the Imperial Russian Geographical Society) Tome XXIII., Nos. 2, 3, 4, 5, and 6, 1887. Tome XXIV., Nos. 1, 2, and 3, 1888. (See next volume.)
- Santiago. Verhandlungen des Deutschen Wissenschaftlichen Vereins zu Santiago. 6 Heft, 1888.—Chilian Zoolites, with illustrations. The Cordilleras of Chili, with diagrams, maps, views, and illustrations. Bibliography. Proceedings of the Society. List of Members. Exchanges with Foreign Societies.
- San Francisco. Kosmos. The Official Organ of the Geographical Society of the Pacific. None received.
- Schaffhausen. Observador-Sul-Americano. Edited by Herr Von H. A. Gruber. Nos. 2, 3, 6, 7, 8, 11, and 12. Information as to German Colonial Society in Brazil.—Commerce of South America (South Brazil especially).
- Stettin. Jahresbericht des Vereins für Erdkunde zu Stettin. None received.
- Stockholm. Ymer Tidskrift utgifven af Svenska sällskapet för Antropologi och Geographi. 1888, Nos. 1, 2, 3, and 4.—(1 and 2) Dr. Junker's Travels in Central Africa, with capital map.—(1, 2, 3, and 4) Ancient Egyptian Sculptures and remains, with diagrams.—(3 and 4) Changes in the Comparative Levels of the Earth's Surface.
- Stuttgart. Geographischen-Statistisches Welt-Lexikon. Editor, Dr. Emil Metzger. Nos. 1 and 2, 1888.
- Stuttgart. Uebersicht über die Litteratur der Württembergischen und Hohenzollernschen Landeskunde, 1888.—A Bibliography of the Geographical and kindred literature of Wurtemberg and Hohenzollern.
- Stuttgart. V. and VI.—Jahresbericht des Württembergischen Vereins für Handelsgeographie und Förderung Deutscher Interessen im Auslande. Editor, Dr. Metzger, 1886 to 1888. Immigration, Emigration, and Colonies. The English Colony of Lagos. Journeyings in the Caucasus and Armenia. Slavery and Slave Trade in East Africa. The Dutch Colony in Sumatra.
- Tokio. Journal of the Tokio Geographical Society. None received.
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(34) The National Park, or the Land of Wonders.—(36) The Topographic and Geologic Conditions of the Toulouse District.—(40, 154) Valley of the Medjerdah (Numerous Views, Sketches, and Inscriptions).—(52) The Italians in Shoa.—(58, &c.) Geographical Chronicle—News, Notes, &c., &c.—(63) Necrology.—(64, &c.) Bibliography.—(65, &c.) Guyane. Dr. Maurich.—(73) Reception (and Addresses) of M. B. de St. Pol-Lias, Explorer (and Address on Sumatra).—(88) The Higher Congo: Fifteen Months among the Cannibals.—(125) Scandinavian Countries.—(128) Communication on La Pérouse.—(130) Alsace-Lorraine and the Germans.—(134) The Touareg, Haggar, and Azguer.—(139) French-Dutch Exploration in the Higher Maroni.—(144) Abyssinia and the Italians.—(149) Topography of the Haute-Garonne. Births and Deaths.—(168) Customs and Laws of the Coreans.—(186) The Chronicle of Kairwan.—(192, &c.) Correspondence.—(202) The Hot-tentots in the Paris Zoological Gardens.—(210) The History of the Hour.—(215) Through Andalusia.—(256) A Revolt in Grenada in 1638.—(330) Hydrography and Orography of the Orinoco.—(336) History of Guyane (map), 1741-1787.—(382) Notes on the North Tourreys (map, MS. by Dr. Muriel).

Tours. Union Géographique du Centre. Société de Géographie de Tours. *Revue* No. 1, January to March; No. 2, April; No. 3, May; No. 4, June; No. 5, July; No. 6, August; No. 7, September to Nov.; No. 8, December, 1888.—(1) The Limits of the Ancient Province of Touraine. A Soldier's Remembrances of Tonquin. Schools and French Influence in Africa.—(1 and 4) Report of the Commercial Geographical Exhibition at the Meeting of the French National Societies at Nantes in 1886.—(2) The Geographical Origin of the city of Havre, and the improvement of the Port. Paris a Seaport. Monograph of the city of Tours.—(3) Agriculture in West Algeria.—(5) The fall of Duplex, its Causes and its Consequences. The Malay Peninsula, Conference and Addresses. Night Watchmen in China. The Great Wall of China. The Universal Language. French Emigrants. Political, &c., Geography.—(5, 7, and 8) Notes on Japan, and Commerce of Japan.—(6) The Origin of French Colonies in Senegal.—(7) West Coast of Africa. M. Westmark. Travels in Mexico, by Lieut.-Col. Blanchot.—(8) China and Japan. Reception of Count Ferdinand de Lesseps—the Suez and Panama Canals. Doctors and Veterinary Surgeons in China. The Republic of Moresnet, one of the smallest independent States of Europe.—(1, &c.) Proceedings of the Society. Necrology. Correspondence. Report on Works received. Meteorological Report of the Department of the Indre-et-Loire, by M. Lettellier. (3, &c.) Reports of the Society, Annual Meeting, and Addresses by the Vice-President, the Treasurer, and others.

Turin. *Cosmos*. Comunicazioni sui Progressi Più Recenti e Notevoli della Geografia e delle Scienze, affini del Prof. Guido Cora. *Organo della Società di Geografia et Etnografia*, Torino. Vol. IX., Nos. 3, 4, 5, 6, 7, 8, 9, 10 to 12, 1888. (References to pages.)—Europe: (13, 142) Anser, Arno, and Serchio in Pisa.—(28) Professor Umlauf's Manual on the Alps.—(129, 134) Position of the Meridian of Monte Maria (Rome) in relation to Greenwich, a critical Study, &c. (2 tables).—Africa: (24, &c.) Ethnography of the Egyptian Sudan in the Continuous Region, and Table of Ethnographic Groups of the Sudan.—(30, &c.) Geographical Chronicle and Bibliography of Africa.—(73, &c.) Italian Mission to Morocco, Tangiers, and Fez, with map of Fez 1: 50,000.—(100, &c.) Italian Possessions in the Red Sea, and the Second Military Expedition to Massowah, from Assab Bay to Shoa (two maps).—(172, &c.) Nachtigal's Travels in the Sahara and the Sudan, 1879-84.—(193, &c.) Egyptian Sudan, Communication from Dr. Schweinfurth.—(194, &c.) Notes of a Journey from Shoa to Assab, by Senor E. Dulio.—Asia: (33) Lake Palti, Thibet (map).—(78) Perucca's Journey Through Central Burmah, 1883-4 (map in text).—(88) Carey's Expedition to Chinese Turkestan, 1885-7.—(95, &c.) Geographical Chronicle of Asia.—(155) Latitudes determined in Central Asia, by Dalglish.—(161) Solution of the Problem of the Sanpo (map).—(262, &c.) Younghusband's Travels through Manchuria to Cashmere.—(270) Note on the Peak K₂ at Dapsang.—Oceania: (218, &c.) The Islands Koemamba, Mor, Wiak and Biak, North of New Guinea (map).—(254, &c.) Geographical Chronicle of Oceania.—(336) Progress of British New Guinea in 1887.—(367) The Aru Islands, New Guinea (chart and profiles).—America: (1) Travels in East Patagonia (two maps).—(21) Dr. Chaffanjon's Explorations on the Orinoco.—(31, &c.) Geographical Chronicle of America.—(40, &c.) The Mayas, by Dr. Brinton; an Ethnological and Linguistic Study.—(225) Territorial and

Economic Condition of Uruguay.—(257) The second Expedition of Steinen to the Ningü.—Polar Regions: (65, &c.) The recent Danish Greenland Expedition, 1886-87.—(160) Geographical Chronicle of the Polar Regions.—Oceanography: (368) Depth of the Indian Ocean.—General Geography: (18) The Total Eclipse of the Sun, August 19, 1887.—(32) Elementary Geography, by Chaix.—(62) Method of Teaching Geography in Secondary Schools, by H. Matzat.—(63) Guide to the Teaching in Primary and Secondary Schools, by L. Hughes.—(64) Gochet's Method of applying the Theory of Meteorology to a Geographical Manual of Instruction.—(256) Exposition of Anthropology and Ethnography.—(288) Practical Geography for Schools, by A. Hughes. [The attention of the members is particularly called to the beauty of the maps in this journal.]

United States, Books and Maps on. Presented by Mr. J. H. Nodal. Virginia, its Climate, Soil, Productions, Manufacturing Industries, and Mineral Wealth. Louisiana, Products, Resources, Attractions (with portrait and map). Denver, Colorado, Fifth Annual Report of the Chamber of Commerce and Board of Trade, 1887 (with illustrations). Arkansas, Facts for Emigrants, 1888. Los Angeles, Fourth Annual Report of the Board of Trade, 1886. Kansas, Missouri, Arkansas, and Texas: Short Account for Emigrants. Oroville, California, Pamphlet describing. Washington, Western and Central, Map of. Montana, Map and Description of. Missouri and Arkansas, Map of.

Valparaiso. See Santiago.

Vienna. Mittheilungen der Kais-Konigl Geographischen Gesellschaft in Wien. Band XXXI. Nos. 1, 2, 3-4, 5-6, 7-8, 9, 10-11, 12, 1888.—(1) The British Indian Province of Assam. An Episode in the History of the Discovery of Chili.—(1, 3, and 4) Official Cartography of European States: Holland and Britain.—(2) The River Reno (with map).—(2, 3, 4, 7, and 8) The Armenian Lakes.—(3 and 4) The Mountain System of Borneo. Expedition to Persia in 1882.—(5 and 6) Dr. Junker in Eastern Equatorial Africa. German East Africa. The Nicobar Archipelago (with map and illustration).—(7 and 8) The Geographical Bibliography of America. (7, 8, and 9) Expedition of Count Teliki in the district of Kilimanjaro and Kienia (with illustrations and map).—(10 and 11) The Religions in Luzon. Series of Maps of the Congo with Notes, by Oscar Baumann and Paul Langha. (10, 11, and 12) Meteorology in Silesia (with numerous tables and three maps).—(12) Annam and Cochinchina, with map of Hue. Description of the Aurora Borealis between the 12th and 13th Century.

Vienna. Bericht über das XIV. Vereinsjahr (Oct., 1887, to Oct., 1888) erstattet vom Vereine der Geographen an der Universität Wien. 1888.—The Oetzthal Glacier, with table of variations. The Snow Limit in the Tatra Group, and other papers of great interest and value.

Vienna. Annalen des K. K. Naturhistorischen Hofmuseums. Edited by Dr. F. Ritter von Hauer. Vol III. Nos. 1 to 4, 1888.—(1) On a New Dieynodon Simocephalus, with table, from Karu (South Africa). Japanese Shells and Corals. New Ichneumon in the Vienna Museum. Types of the Ornithological Collection of the Royal Natural History Museum, Vienna. On the discovery of the Pelecanus Sharpei at Bocage, in Austria-Hungary.—(2) On Meteorites.—(2 and 4) Ethnological Discoveries in New Guinea, Bismarck Archipelago, and other Islands in the South Seas (with illustrations).—(3) Collection of Bees in the Museum (illustrated). Flora of the Stewart Islands, Pacific Ocean. The Chalk Formation in Lower Austria (illustrated). Flora in New Caledonia (illustrated).

Washington, D.C., U.S.A. Report of the Superintendent of the United States Coast Survey, showing the progress of the survey. During the year 1870, 232 pp., 28 maps and diagrams; 1871, 220 pp., 36 maps and diagrams; 1872, 268 pp., 28 maps and diagrams; 1873, 180 pp., 18 maps and diagrams; 1874, 242 pp., 21 maps and 3 illustrations; 1875, 412 pp., 21 maps and 16 illustrations; 1876, 416 pp., 21 maps and 16 illustrations; 1877, 192 pp., 24 maps and 1 illustration; 1878 (and Geodetic), 304 pp., 26 maps and 13 illustrations; 1879, 214 pp., 32 maps and 21 illustrations; 1880, 420 pp., 32 maps and 52 illustrations, &c.; 1881, 352 pp., 33 maps and numerous illustrations, &c.; 1882, 566 pp., 25 maps and 27 illustrations and diagrams; 1883, 488 pp., 24 maps and 26 illustrations and diagrams; 1884, 622 pp., 19 maps and 6 illustrations and diagrams; 1885, 500 pages, 18 maps and 28 illustrations and diagrams; 1886, 434 pp., 17 maps and 22 illustrations and diagrams. Washington Government Printing Office. [This

splendid series of books is sent to us, at the request of Major General Greeley, by the War Office of the U.S.A. The books contain a series of treatises of the scientific part of the work of the Survey, information on the topography of the country, oyster culture, and a large number of appendices treating of allied subjects, and are full of illustrations in the text. They are a mine of wealth to the student in meteorology, surveying, topography, and other subjects.]

Washington. Annual Report of the Chief Signal Officer of the Army, to the Secretary of War. For the Year 1885. Part 1, 610 pp., diagrams; Part 2, 46 pp.; 1886, Vol. IV., 500 pp. and diagrams; 1887, Part 1, 362 pp.; Part 2, 392 pp., 36 plates. [This volume is a treatise on meteorological apparatus and methods, by Professor C. Abbe, A.M., and is prepared under the direction of Brigadier-General A. W. Greeley, Chief Signal Officer, by authority of the Secretary of War.] The Signal Service, Washington. Presented through the kindness of General Greeley, Signal Service Office, Washington.

Washington. Contributions to the Natural History of Alaska. Results of Investigations made chiefly in the Yukon district and the Aleutian Islands, conducted under the auspices of the Signal Service U.S. Army, extending from May, 1874, to August, 1881. By L. M. Turner. No. 2, with 26 plates.—Report upon Natural History Collections made in Alaska between the years 1877 and 1881. By Edward W. Nelson. No. 3, with 21 plates. The Signal Service U.S. Army, by Major-General Greeley.

Washington. Manchester, Ship Canal. Report of Consul Hale. With diagrams. 15 pp. Government Printing Office, Washington. 1888. The Author.

Washington. The African Repository. Vol. LXIV. No. 4. 1888.—The Men for Liberia. The term "Negro." America and Africa's Evangelisation. Liberia as seen by a Visitor. High Life in Liberia. Cape Palmas. Tropical Africa. Zulu Light Literature. Training School for Africa. Advance of the Coloured people. Colonisation and Education. North-West Boundary of Liberia. Letters from Liberia. A Negro Nationality.—Presented by the Committee of the American Colonisation Society.

For other additions to the Library of Books, Pamphlets, Maps and Diagrams, &c. see pages 111, 120, 122, 124, 125, 147, 148, 169.

MANCHESTER GEOGRAPHICAL SOCIETY.

LIST OF MEMBERS,

DECEMBER 31st, 1888.

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Alexander, Bernard, Museum Street, Manchester
Aldred, Thos., F.C.A., Norwood, Derby Road, Heaton Moor
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A Andreasian, Ohanness, 100, Portland Street, Manchester
A Andreasian, Mrs. O., Gladys Mount, Stretford
Anson, The Ven. Archdeacon, Birch, Manchester
Armitage, B., J.P., Chomlea, Pendleton
Armitage, Jos. J., Chaseley Fold, Pendleton
Armitage, Sam., Chaseley House, Eccles Old Road, Manchester
Armitage, V. K., M.A., J.P., Swinton Park, Manchester
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A Arnold, W. A., Haworth's Buildings, Cross Street, Manchester
A Ashburn, William, 36, Portman Street, Whalley Range, Manchester
Ashton, W. A., 14, Palace Square, Manchester
Ashworth, Francis, 109, Princess Street, Manchester
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Attkins, Edgar, 33, Princess Street, Manchester
- Baddeley, John, 1, Charlotte Street, Manchester
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Bailey, Alderman W. H., Albion Works, Salford
Balfour, The Right Hon. A. J., M.P., 4, Carlton Gardens, London, S.W.
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Barker, James, Church Street, Manchester
Barker, John Lees, Bowdon
Barker, Reuben C., Kenley, Cheadle
Barker, Richard, 10, Nelson Street, Lower Broughton
A Barlow, James, Radcliffe
Barlow, John R., Greenthorne, Edgeworth, Bolton
Bates, Ralph, J.P., Acres Bank, Stalybridge
A Becker, Miss Lydia E., 9, John Dalton Street, Manchester
Beith, Gilbert, J.P., 7, Royal Bank Place, Glasgow
Beith, J. A., J.P., 14, Bridge Street, Manchester
Beith, W. A., 14, Bridge Street, Manchester
Behrens, Charles, 36, Princess Street, Manchester
Behrens, Henry, 78, Princess Street, Manchester
Behrens, Frank, 55, Fountain Street, Manchester
Behrens, Gustav, 36, Princess Street, Manchester
A Belisha, B. I., 11, Todd Street, Manchester
H Belgians, His Majesty the King of the, K.G.
Bell, Frederick, 97, Shrewsbury Street, Moss Side, Manchester

- ΔBessant, W. S., Deaf and Dumb Institute, Old Trafford, Manchester
 ΔBickerton, Richard, Richmond Street, Ashton-under-Lyne
 Bickham, Alfred, Bowdon
 Biema, C. Van, 29, Dale Street, Manchester
 cBigot, Professor Leon, Paris
 Birch, Herbert, 54, John Dalton Street, Manchester
 Black, Surgeon-Major J. M., F.R.C.S.E., 2, George Square, Edinburgh
 Blair, George Beatson, 18, Aytoun Street, Manchester
 Blake, John Charles, 21, Turner Street, Manchester
 ΔBlelock, W., 19a, York Street, Manchester
 Bles, A. J. S., Chorlton Street, Manchester
 Boardman, James, C.A., 64, Cross Street, Manchester
 ΔBoddington, Councillor Henry, New Bridge Street, Manchester
 hBodio, Professor Luigi, Minister of Statistics, Rome
 hBonaparte, Prince Roland, Paris
 ΔBooker, J., 54, Devonshire Street, Higher Broughton
 ΔBooth, William, Argyle Buildings, Heywood
 Bostock, Thomas, 11, Bloom Street, Manchester
 Bowes, G. T., 7, St. Luke's Terrace, Cheetham Hill
 ΔBradburn, James, 8, St. Mary's Parsonage, Manchester
 ΔBradburn, S. J., F.A.S., 44, Fairlawn Street, Moss Side, Manchester
 Bradshaw, Ed., East View, Whitefield
 Bramwell, Samuel, 4, St. Ann's Square, Manchester
 Braund, Herbert, 27, Hulton Street, Moss Side, Manchester
 Bright, Jacob, M.P., 31, St. James's Place, London
 ΔBrook, S. Hamill, 6, Wells Street, Buckley Wells, Bury
 ΔBrooks, E. J., 16, Claremont Grove, Barlow Moor Road, Didsbury
 Broome, Joseph, J.P., (Broome, Hallworth, and Foster), St. Peter's Square, Manchester
 cBryce, J. Annan, 35, Bryanston Square, London, W.
 ΔBubier, Louis (Messrs. Holdsworth and Gibb), George Street, Manchester
 ΔBuckley, Councillor B., J.P., Heywood
 ΔBurnham, Samuel, 2, Harwood Place, Old Trafford, Manchester
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 ΔBurton, Frederic, Hopefield, Waste Road, Pendleton, Manchester
 Bythell, J. K., 7, South Street, Manchester

 ΔCadman, Wm., 6, Brunswick Villa, Stephen Street, Stretford
 ΔCalvert, George W., Denbigh Villa, Levenshulme
 Cameron, Kenneth, 61, Faulkner Street, Manchester
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 c Lee, H. H., J.P., Bathurst, River Gambia, West Coast of Africa
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 A Leech, Mrs. Bosdin T., Oak Mount, Timperley
 A Leech, Miss, c/o Mr. S. J. Reade, Reade House, Flixton
 A Leech, Samuel, Goods Superintendent, L. & Y. Ry. Co., Victoria Station, Manchester
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 Rushworth, Councillor James, Dantzic Street, Manchester
 Rymer, Thomas Harrison, Earlstown House, Broughton Park, Manchester

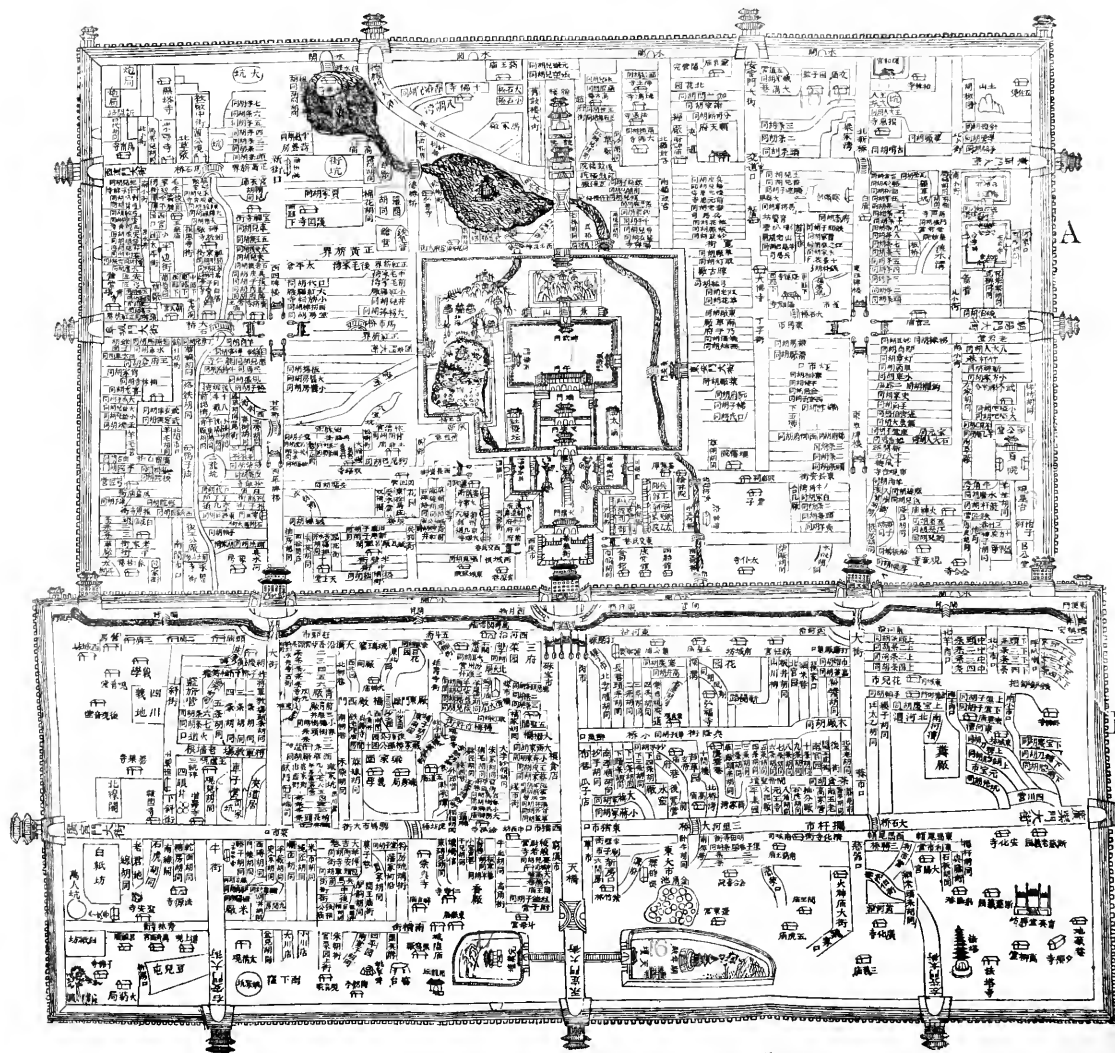
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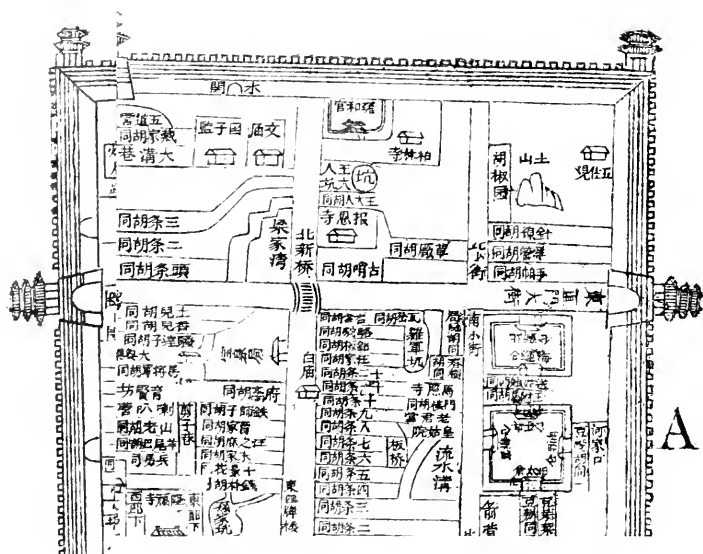
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THE JOURNAL

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MANCHESTER GEOGRAPHICAL SOCIETY.

PEKING AND THE PEKINGESE

(*See Chinese Map of Peking.*)

BY THE REV. GEORGE OWEN, OF THE LONDON MISSIONARY SOCIETY, PEKING.

[Addressed to the Members, January 25th, 1889.]

CHINA, during the 4,000 years of her history, has changed her dynasty about twenty-eight times, and each new dynasty has generally preferred to build itself a new capital. Peking, therefore, is not so old as we might expect—still, it has a pretty long pedigree. It has been a capital, with brief interruptions since A.D. 936, and the spot where it stands is old historic ground.

It was there that a descendant of the semi-mythical emperor, Huangti, in 1121 B.C., built the city of Chi, and ruled as feudal lord. From the seventh to the third centuries B.C. this city of Chi was the capital of the principality of Yen, which long played an important part in North China. But in 222 B.C., or thereabouts, Ch'in-shi-huang, builder of the Great Wall, and first absolute monarch of China, destroyed it. It reappeared, however, and during the fourth century of our era, Chi was the capital of a small Tartar state. This ancient city probably stood a little to the north of the present city of Peking. One gateway and two hillocks are still pointed out as being remains of Chi; but they may belong to the much later city of Kublai.

Then the old city of Chi was probably destroyed, and a new city, called among other names Yen, was built a little to the south-west of the present city. Yen is still the poetic and literary name of Peking. There is a fine pagoda, the Tien-ning-sze, belonging to this period, just outside the west wall of the present southern city, covered with Buddhist carvings. It was built about A.D. 550, and was probably then inside the city.

During the celebrated Tang dynasty, which ruled China from A.D. 618 to 907, the Elizabethan period of Chinese literature, this second city appears under the name of Yiu-chou, and was the residence of a military governor-general. There is a temple of this period, or its lineal descendant, in the south-west

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corner of the present southern city. A monument in this temple states that the temple was built A.D. 645. Its ancient name was Min-chung-sz; now it is called Fa-yuan-sz.

In A.D. 936 the Chi-tan Tartars conquered the north of China, and made Yiu-chou the capital of their Chinese possessions, and called it Nan-ching, or southern capital, their northern capital being in Tartary. It was subsequently named Yen-ching, or capital of Yen. It was a large city, twelve miles in circumference. But in 1122 the Chinese retook the city, and degraded it to a prefectural city, calling it Yen-ching-fu. But they only held it for three years. It was then (1125) taken by the Nüchen Tartars, known in Chinese history as the Chin, or Golden Dynasty, who rebuilt it and made it their capital. The new city was called Chung-tu, or middle capital, and would seem to have consisted of four concentric walled squares, the outermost of which was twenty-five miles in circuit and the next ten.

The capital of the Chins was partly on the site of the present southern city of Peking, but lay mostly beyond it to the south and west. The western portion of the present city stands on the eastern portion of the old Chin city. The Kuang-en Monastery and the Tien-en Pagoda, now just outside the walls of the southern city, were inside the Chin capital. Between two or three miles south-west of the existing city there is a rampart, over two miles in length, which tradition says is the old wall of Chung-tu. A portion of the northern wall may also be traced near the north-west corner of the present southern city.

But the city again changed masters. It was taken by one of the armies of the great Mongol conqueror, Genghiz Khan, in 1215, and his grandson, Kublai, made it his capital in 1264. Told by his astrologers that the old city would be rebellious and be a danger to his rule, he built a new city in 1267, a little to the north-east of the old Chin city.

Kublai's new city was called, in Chinese, Ta-tu, or Great Capital, and in Mongol, Khanbalih, City of the Khan. It was 60 *li*, or 20 miles, in circumference, according to the history of the Mongol dynasty, and had eleven gates. It stood where the northern city of Peking now stands, but was considerably larger, stretching 5 *li*, or nearly two miles, farther north. Kublai might well call his new city the Great Capital, for it was not only great in itself, but the metropolis of an empire far larger than Rome ever ruled in her palmiest days, perhaps the largest empire ever ruled by one man.

The Venetian traveller, Marco Polo, accompanied his father and uncle to China in 1275, and lived there till 1292, a period of eighteen years. He was a favourite of Kublai, who employed him on several important missions, and made him governor of Yang-chou. In his travels he gives a glowing account of Ta-tu, the great capital of Kublai, which, after its Mongol name, he

calls Cambaluc. He says the city was a square 24 miles in circuit, each side being six miles long. This, however, does not agree with the Chinese account, which only gives 20 miles. The walls were 50 feet high, and pierced by 12 gates surmounted by lofty towers, each gate being guarded by 1,000 soldiers. The palace, the outer wall of which was four miles in circumference, was guarded by 12,000 men. The streets were broad, and extended the whole length of the city. The population was immense, and overflowed into the suburbs, which contained more people than the city itself, large as that was. To show the greatness of the population, he says there were over 20,000 prostitutes outside the gates. The trade was very great, and large numbers of foreign merchants lived or lodged in the suburbs. As an example of the immense traffic, he mentions that not fewer than 1,000 bales of silk entered the city daily. It was a great commercial emporium, as well as a great capital.

Kublai died in the early part of 1294, and was succeeded by his grandson Timur. But the dynasty of the Great Khan did not last long. Degeneracy soon set in. In order to hold the southern Chinese in check, the seat of government was removed to Hangchow. This may have delayed but it did not avert the day of doom. The Chinese, tired of their foreign masters, revolted, and after years of struggle drove the Mongols from the throne in 1368, just 89 years after the conquest of South China by Kublai.

The victorious Chinese general, Chu Yuan-chang, proclaimed himself emperor. He was of very humble origin, and had been a priest, then a soldier in the ranks, but possessed great vigour and unusual organising power. When Ta-tu, the capital of the great Kublai, fell into his hands, he ordered five *li*, or nearly two miles, to be cut off from the north end, and constituted the remainder a prefectural city. He established his court at Chiang-ning-fu on the Yangtse river and called it Nanking or the southern capital. Thus Peking again suffered eclipse, but its fortunes soon revived.

The first ruler of the Ming, whose reign-title was Hung-wu, died in 1398, leaving the sceptre to his grandson Chien-wen. This his son Yunglo, then ruling in the old northern capital as Prince of Yen, did not approve of, and he marched an army on Nanking. The young emperor fled, and is said to have become a Buddhist monk and lived to a great age. This was in 1403. In 1409 Yunglo abandoned Nanking and established his court in the city of Kublai, and called it Peking, or northern capital, and it has been the capital of the empire ever since. The same year he began to reconstruct the walls. Nearly two miles of the north end of the old Mongol city had been cut off by Hung-wu and a new north wall built where we now find it. The remaining walls Yunglo reconstructed and faced the whole with

stone and brick. The work was finished in 1437. The abandoned portion of Kublai's city can still be traced. A high earthen rampart marks the site of the old walls, and four gaps in the rampart, one in the east and west portions and two in the north, indicate the site of the gates.

After the building of the city, it would seem that a southern suburb sprang up, having a large population and thriving trade. To protect this important suburb, Chia-ching, in 1543, built the present southern city, usually called by foreigners the Chinese city. It immediately adjoins the city of Yunglo, so that the south wall of the one forms the north wall of the other.

This completed the capital of the Mings, and the city had rest for one hundred years. Then came trouble. In 1644 the last emperor of the Mings hanged himself on a crab-apple tree on Prospect Hill. The Manchus entered Peking, and there they are still. They found a noble capital ready made, and settled in it. They altered little, and added little. Peking is just the same as when the old Mings bore sway there between 200 and 400 years ago, except that it is older, dirtier, and more dilapidated. Let us examine it, and make a few notes as we go along.

Peking consists of two cities, called by the Chinese the inner and outer cities, and by foreigners the Tartar and Chinese cities. But only a wall, pierced by three gates, divides them, and the two are one.

In shape, the south or Chinese city is a parallelogram, about five miles long by two broad. It overlaps the north or Tartar city on the east and west sides. It would seem that the original intention was to carry the walls right round the Tartar city. But it was not done; they were carried just far enough to overlap the south-east and south-west corners, and stopped. The walls are 22ft. high and 15ft. broad at the top, and a little over nine miles (28 *li*) in length. (This, of course, does not include the south wall of the Tartar city.) The southern half of the city is waste land, graveyards, and kitchen gardens, while two large slices are occupied by the Altar of Heaven and the Altar of Agriculture. But the half adjoining the Tartar city is thickly populated, and is crowded with shops of every description, especially the part just outside the central gate, called by the Chinese the Chien Men. Nearly all the important business of Peking, both wholesale and retail, is done there. All the large banks and mercantile houses are near this gate. There is a labyrinth of streets, and the shops are closely packed; every foot of ground is precious. Generally each street, or each section of street, is devoted to a particular business, fans and pictures here, silks and satins there. Nearly everything the world produces can be bought in those well-stocked shops and bazaars. Manchester goods are there in abundance. The streets present a busy and picturesque scene. But they are ill-

kept and mostly very dirty. The business of Peking is mainly local. There is a small export trade in artificial flowers, hats, boots, and tobacco pouches. But the imports greatly exceed the exports.

The Altar of Heaven and the Altar of Agriculture are in the southern part of the city; and in the western part, and just outside the walls, are several ancient temples well worth visiting. This western portion stands on the site of several ancient cities—Chungtu, the capital of the Nüchen Tartars (1125); Yenching, the capital of the Chitan Tartars (936); and of the still more ancient Yiu-chou and Yen (500—900). The antiquary will find interesting relics of those vanished cities.

The northern, or, as the Chinese call it, the inner city consists of three nearly concentric walled squares—the Tartar city, the Imperial city, and the Palace.

The walls of the Tartar city are very imposing, and the approaching traveller cannot fail to admire them. They are 45½ ft. high and 47¼ ft. broad at the top. The wall is built of earth, faced on both sides with stone slabs below and large bricks above. The top is paved with large brick flags and protected by a crenelated parapet on each side. It would make a splendid promenade if allowed to be used for that purpose. At intervals of 60 yards the wall is strengthened by broad deep buttresses, on which here and there guard-houses are built. The wall is nearly 14 miles (41 *li*) in circuit, and is pierced by nine gates, three on the south side leading into the southern city, and two each on the east, west, and north sides. Each gate is protected on the outside by a semicircular wall or *enceinte*, and surmounted by a huge tower over 100 ft. high (99 Chinese feet), and loop-holed like an old three-decker. On each of the four corners of the city stands another enormous tower similarly loop-holed. Seen from a distance these towers present a very striking appearance. The city is considerably longer from east to west than from north to south, the north and south walls being four miles long, while the east and west walls are only three.* The principal streets run the entire length of the city, and are over 100 ft. wide, and were originally much wider, the shops on both sides having crept forward. From these main streets the smaller streets branch off at right angles. Where the great streets cross each other they are spanned by four ornamental arches. Single arches are also thrown across the large streets, at important points, for ornamental purposes. The main streets are mostly devoted to business, while the smaller ones are occupied by private residences. In the width of its streets Peking is a great contrast to most Chinese cities. In the south they are so narrow

* The north wall measures 6,790 metres = 11·81 *li*; the south wall, 6,690 metres = 11·64 *li*; the east wall, 5,330 metres = 9·27 *li*; the west wall, 4,910 metres = 8·54 *li*.

that a person standing in the centre and spreading out his arms can touch both sides. Peking owes this feature to the great Mongol emperor Kublai, who, rather than the Chinese emperor Yunglo, must be considered the builder of Peking.

A long way inside of this great wall, towards the centre of the city, there is another enclosure called the Huang Cheng or Imperial City. It is six miles in circumference, and has four principal gates corresponding with the four cardinal points. A good deal of this enclosure is occupied by the imperial pleasure lakes, pay offices for the troops, temples, and other public buildings. Still the resident population is not small, and there are thriving business streets.

Inside this there is another walled enclosure, called the Purple Forbidden City, surrounded by a broad deep moat. It is a little over two miles (6·3 *li*) in circuit. This is the Imperial Palace, where the Son of Heaven, ruler of over 300,000,000 of people, lives. But the high wall shuts him and his palaces from view. A glimpse of the yellow tiled roofs is all the most curious can get.

But the imperial pleasure grounds are outside the Forbidden City, and can be seen if not entered. On the north of the palace, and separated from it by the moat and a narrow road, is the Ching Shan, or Prospect Hill. It is an artificial hill, about 150 or 200 feet high, probably made with the earth dug out of the neighbouring lakes. Tradition says there is a large quantity of coal stored away in this hill against a possible winter siege, and for this reason it is commonly called the Coal Hill. It is a picturesque hill, covered with trees, and its five peaks are each crowned with a Buddhist shrine. It was on this hill that the last emperor of the Ming dynasty hanged himself just before the Manchus took Peking. Of course, it is surrounded by a wall, and, equally of course, the public are excluded. It is a good mile and a half in circumference. The hill serves a useful as well as an ornamental purpose—it protects the palace from the malign influences of the north.

On the west side of the palace and Prospect Hill are the imperial pleasure lakes, spanned by a splendid marble bridge, 660 feet long. The view from this bridge is the finest in Peking. The lake extends a considerable distance north and south, and is covered in summer with lilies of various sorts, notably the pink-flowered lotus, filling the air with delicious perfume. The winding shores of the lake are dotted over with clumps of trees, with temples, pavilions, and summer-houses, some of them projecting far out into the lake. At the eastern foot of the bridge is a high round wall, called by the Chinese the Round City, enclosing an old temple of the thirteenth century, and several venerable white pines. On the north side of the bridge is an island, some 100 feet high and about half a mile in circum-

ference, crowned by a large white dagoba. The island is dotted over with summer-houses and temples. There is an altar to the patron god of silk, surrounded by mulberry trees. Here the empress comes annually to feed the silkworms, as an example of industry to the women of the empire. There is a tradition that the earth to form this island was carted all the way from the borders of Mongolia. Some knowing geomancer told one of the Chin emperors that the possession of the empire depended on the possession of a certain hill; so the hill was bought and carted to Peking. Both lake and island date from the twelfth century, or time of the Chin dynasty. On this lake the emperor occasionally takes a little boating. Then the bridge, and all the approaches to the lake, are closed to the public. The Son of Heaven is too sacred to be seen by vulgar eyes. This bridge has recently been closed to the public altogether, which is a real misfortune to residents and visitors, as it deprives them of the only bit of pretty scenery in Peking, and shuts up the shortest route between the east and west parts of the city.

Seen from the top of the great outer wall, Peking looks well. The yellow tiled roofs of the imperial palace and larger temples, the imperial pleasure lakes and hills, the green tiled roofs of the imperial princes and higher nobles, the numerous temples and public buildings, and the immense number of fine trees growing in the courts of both rich and poor all over the city, impress the beholder with its magnificence and beauty.

But as soon as he comes down from the walls the pleasing illusion is dispelled. The streets and lanes are neither paved nor macadamised, but consist of earth trodden hard by innumerable feet. In dry weather they are deep in dust, and in wet deep in mud. They are filthy, too, with the refuse of numberless courts and kitchens, and foul with every nameable stench. They are the common midden heap and cesspool of the city. Everything is cast into the street to reek and rot, for dust carts are unknown. Originally the city had a good system of drainage, but now the drains in many places are broken down and pour their malodorous filth into the streets. Along the main thoroughfares, at short intervals, the drains are uncovered, that the street waterers may get at the sewage to water the streets. This is done every afternoon, between four and six o'clock, at which time particularly the possession of a nose is a sore infliction. The indifference of the Chinese suggests the question whether they have the sense of smell or not. But it is in April and May that Peking is foulest. The drains are then opened at intervals of two or three hundred yards for spring cleaning. The thick liquid filth is drawn up in buckets, poured into cesspools along the streets, and there left to dry. The smells during that drying process are foul in the extreme. The filthiness of the city is further increased by the

disgusting habits of the men, who make every corner and blank wall a place of convenience.

Yet, strange to say, Peking is fairly healthy, even for Europeans. According to our Western ideas, such a place should be a plague spot, and human life should run a very brief course. As a matter of fact, epidemics seldom occur, and three-quarters of a million of people enjoy average health and longevity. If fever and cholera were carried about in bad smells or lurked in fetid drains, Peking and every other city in China would be uninhabitable. I attribute the comparative immunity of the Chinese from these and like diseases to the fact that they very rarely drink cold water, which is generally impure, experience having taught them its dangers, but boiling water, warm tea, or thin broth.

In the streets, nothing can be seen of those palaces, mansions, temples, and trees, which we saw from the top of the city wall. They are walled in and invisible. Only the shops face the streets. Some of these are elaborately carved and beautifully gilded, particularly the silversmiths, confectioners, and tea-dealers. But there are no glass or plate windows decorated with choice goods, as in London or Paris. The shop fronts are all open to the street, and the goods are arranged on shelves or in drawers at the back. Generally speaking the shops are dull and uninviting, and often dingy and dirty. Looking along the street, the view is curious and interesting, but not beautiful. The shops and dwelling-houses are all low, mostly one-storied, none more than two. The sides of the large busy streets are lined with booths for the sale of old clothes, and with huts and stalls for the sale of everything. In other parts, bricks, stones, and timber are stacked, looking more like a building-yard than a street.

The streets present a lively scene. They are thronged from morning till night, and the amount of buying and selling is immense. The number of pedlars and itinerant jobbers is extraordinary. There are cooks with miniature restaurants on their shoulder, supplying hot luncheons for a farthing and dinners for a penny, sellers of fruit and flowers, cats' meat and muffin men, wood and charcoal vendors, tape and ribbon dealers, market gardeners, rag gatherers, scissors grinders, barbers, tinkers, and cracked-ware menders, *et hoc genus omne*. Each trade has its own cry or its peculiar rattle, and while the sun is up the din never ceases. Itinerant showmen, acrobats, conjurors, and story-tellers, are numerous. Blind musicians, singers or fortune tellers in companies or singly, feeling their way with sticks, are a sad but frequent sight, for blindness is a common calamity in China. Beggars abound. They are a dirty, diseased, gruesome lot; but bold and impudent, exacting tribute from every shop, and pestering every respectable passer-by. Long strings of

camels laden with coal or lime, move slowly and sadly along, as if burdened with the sorrow of all the ages. Carts or springless cabs drawn by mules are the only means of conveyance, except donkeys, and every street is crowded with these heavy, slow-moving, uncomfortable vehicles. What a boon trams would be! How long, I wonder, before we get them?

The number of officials is alarming. Peking swarms with them. What they all do, I cannot imagine, unless it is to look after one another. But red-tapeism reigns in China, and the noble art of how not to do it is carried to perfection. China has comparatively few hereditary nobles; but they are nearly all in Peking, so we see a good deal of them. They live in great style, and when they appear in public, their yellow, green, or red sedan, is followed by a numerous mounted retinue, nearly choking humble pedestrians with the dust they make. The marriage or funeral, especially the funeral, of one of these grandees, or of a high official, is a very imposing sight. The procession takes two or three hours to pass any given point. In striking contrast with these grand funerals is the burial of little children. Every morning a buffalo cart, called the Lu-ti-tsz-hang, or Land-ship of Mercy, goes the round of each ward of the city. As it moves slowly along the great thoroughfares, persons from this court and that alley may be seen placing in it packages wrapped in straw or matting, or rough wooden boxes. Each package contains the body of a child that died during the previous night or afternoon. When the cart is full, or has completed its rounds, it goes out of the city gate and turns its sorrowful load into one common pit, and thus the little ones are buried. There is no funeral service, no mourners, and nothing to mark where the little ones lie. In China a child under ten is never buried in the family graveyard, but in some waste corner, or is thrown into the baby deadhouse which stands outside most Chinese cities, or in a common pit as in Peking. When a child dies it is supposed that an evil spirit, escaped from hell, has got into the child, but vengeance has followed and found it. Hence the child's death and strange burial. The idea is in painful contrast with the words of our Lord, "*Suffer the little children to come unto me, and forbid them not; for of such is the kingdom of heaven.*"

In the busy crowded streets, various races and nationalities are represented. Of course, Chinese form the bulk of the population. The business is nearly all in their hands. But comparatively few are natives of Peking. They come from all the eighteen provinces, and there is a perfect babel of dialects. But they do not regard Peking as their home, and seldom bring their families with them, and if they die, their bodies are carried back to be buried beside their fathers.

Next in point of numbers are the Manchus. They are the

descendants of the great Manchu army, that conquered China and took Peking in 1644. They are divided into eight banners or regiments. All males receive a monthly allowance from the Government, and are liable to military service. They form an army reserve, and cost the Government, it is stated, £160,000 a month. They are very idle, very improvident, and usually very poor. They are hardly distinguishable from the Chinese, the dress being the same, and the physiognomy nearly alike. Very few of them can speak Manchu.

But Manchu women allow their feet to grow to the natural size, and enjoy much greater liberty than Chinese women. It is a striking illustration of the conservatism of the Chinese that, though their empresses and the highest ladies in the empire for more than 200 years have had natural-sized feet, they still cripple the feet of their women.

Hundreds of rough hardy Mongols, dressed in sheepskins, and mounted on ponies or camels, come to Peking in winter. Corean merchants and hawkers, in queer conical hats and white quilted gowns, are there in spring and autumn. Occasionally, too, we see a Thibetan, Nepaulese, Burman, or Tonquinese, come to lay tribute at the foot of the great Dragon Throne.

In two or three places there are stone slabs, in four Asiatic languages, commanding all to dismount from their horses and carriages, and walk humbly past the precincts of the Son of Heaven. Happily, this command is not now enforced. If it were, other slabs would be needed in the various languages of Europe; for nearly every Western nation has a legation there, and east and west meet in the streets of Peking.

The population of Peking is not so large as the size of the city and the crowded state of the principal streets would lead one to suppose. There are lots of waste land and vacant spaces within the walls. The imperial palace, the mansions of the princes and nobles, the numerous government offices, and large temples, occupy a considerable part of the city. The population is certainly not over a million—probably three-quarters of a million is nearer the actual number.

The state of education is very low. The great mass of the people can neither read nor write. There are no government schools, and as one master can only teach from ten to twenty boys, school fees are too high for the poor. The Chinese system of education also is so slow and laborious that it requires eight or ten years' hard grinding before a boy can read and write well enough to be of much practical value. The result is that only about 10 per cent of the male population of Peking have received an education. The women are not educated at all, or only a very few.

Concerning the moral condition of the people, it is hard for a foreigner, however long resident, to speak with certainty.

There is a good deal of outward decorum and order. The Chinese are old hands at whitewashing the outside of the sepulchre; but even a foreigner sees enough to show that the inside is full of corruption and dead men's bones.

The upper and wealthier classes are nearly all polygamists and generally opium smokers. Brothels, opium dens, and secret gambling hells are numerous. Street drunkenness is not common, though the consumption of native whisky is considerable. Property is fairly secure, provided the owner looks well after it; but everything not watched is stolen. The doctors' advertisements, which cover every blank wall, indicate a fearful amount of immorality and crime. Syphilis and abortion must be very common. That public opinion is not shocked by such scandalous advertisements is strong evidence of the corruption of the whole people.

Alongside of these advertisements are numerous yellow placards, which tell us something of the religious condition of the people. One set announces that "Lü Tsu (an ancient Taoist priest) is sure to answer sincere prayer;" another that "Prayer to Mrs. Wang (an old woman of the Mother Shipton class) is always efficacious." But the bills which outnumber all others bear the legend—

"VENERABLE FAIRY FATHER (*i.e.*, the fox),
Ask and it shall be given."

That is to say, prayer made to the fox will certainly be answered. Animal worship is rife in North China. Some sects worship almost exclusively the fox, snake, hedgehog, and weasel, calling them the "Four Immortals." Others add the rat, and call them the "Five Great Families." These animals are worshipped more or less by all classes. I have myself seen men, women, and children, just outside Peking, worshipping at a fox burrow. Religious degradation can go no further.

For the capital of a large empire Peking has few great buildings, monuments, or ancient relics of general interest; and those few are not very accessible. It is only by scaling walls and the use of substantial silver keys that we foreign barbarians can see any of them. Even the silver key will not open some locks.

The Altar of Heaven comes first, both in importance and interest. It stands in the southern part of the Chinese city, in a park-like enclosure, surrounded by three walls, the outermost of which is nearly three miles in circumference. The altar is built of white marble, and consists of a triple circular terrace, 210ft. wide at the base, 150ft. in the middle, and 90ft. at the top.* Each terrace is surrounded by marble balustrading and

* Throughout the altar most numbers are three or multiples of three. The balustrades of the three terraces are 72, 108, and 180 respectively. So also in the pavements of the two lower terraces and the steps.

ascended by four flights of nine steps each. The surface of the altar is paved with white marble flags in nine concentric circles, the innermost circle consisting of 9 flags, the second of 18, the third of 27, and so on till the square of nine is reached in the outermost circle of 81 slabs. The centre stone is a circle. On this stone the Emperor kneels shortly before dawn on the morning of the winter solstice, and offers solemn worship and sacrifice to Heaven. A bullock without blemish is burned in a green porcelain furnace near the altar. A piece of blue jade, silk, corn, and other offerings are also presented. While the Emperor kneels, a prayer to Heaven is read, and then burned. He calls himself minister or servant, and acts as representative of the nation. There does not appear to be anything expiatory in the sacrifice. The sun and moon, the five elements, and deceased ancestors are associated with heaven in this highest worship of China, and offerings of cloth, a bullock, a sheep, and a pig are presented to them. This great ceremonial represents a worship which goes back to the earliest times, and is a relic of the ancient monotheism of China, but long since corrupted by mixture with nature worship. Heaven has been deified and God confounded with the powers of nature. Possibly some of the old glory lingers, and the idea of a personal God has not been wholly lost.

Within the same enclosure, but a little to the north, is another beautiful round marble structure, with triple terraces and surrounding balustrades, just like the great Altar of Heaven, only not quite so large. It is surmounted by a noble temple 99 feet high, having a triple roof of blue tiles like heaven's azure. In this temple prayer and sacrifice are offered in early spring for a propitious year. It is called the Chi nien tien, or Hall of Prayer for a Propitious Year.

Corresponding with this Altar of Heaven in the southern suburb there is a square flat Altar of Earth in the northern suburb, where the emperor worships on the morning of the summer solstice. In the eastern suburb there is an Altar to the Sun, where state worship is offered on the 8th of the 2nd moon, and in the western suburb an Altar to the Moon, where a representative of the emperor, rarely the emperor himself, worships on the 15th of the 8th moon, the evening of the full harvest moon. Thus, on the four sides of Peking we have Chinese nature worship brought very vividly before us. Each of these altars is situated in a large walled enclosure.

On the east wall of the Tartar city, not far from the south-east corner, is an astronomical observatory. It is built against the wall, and rises a few feet above it. It is the oldest observatory in the world, 400 years older than the oldest in Europe. It was established by Kublai, about the year 1279. The old instruments of Kublai have been removed from the terrace and placed below

in the front court. These consist of an equatorial armillary, an astrolabe, and an altitude and azimuth instrument. They are in bronze and beautifully ornamented, each being borne in the mouth and claws of four richly-carved dragons. As castings they are marvels of beautiful workmanship, and as astronomical instruments they are the best of their time. But they are now antiquated and useless, and must always have been difficult to handle. The circle is divided into $365\frac{1}{4}^{\circ}$ after the length of the year. The instruments which have taken the place of these old ones upon the terrace were made under the direction of Verbiest, the famous Jesuit missionary, about 1674, and were evidently modelled after Tycho Brahe's instruments. The altitude and azimuth instrument differs from the others in having the degrees marked in foreign numbers, and is said to have been a present from Louis XIV. to the emperor of China. These instruments are all exposed on an open terrace. In one of the side rooms in the front court there is a large water clock, used to mark time during eclipses.

Close to the observatory is the great Examination Hall, or Yard as the Chinese very properly call it. It consists of a walled enclosure, in the centre of which stands the examiners' rooms, surmounted by a watch-tower commanding a view of the entire enclosure. On each side are several thousand cells, arranged in long rows one behind the other. These cells are very small and very rough, and look just like sentry boxes placed close together in rows. Here examinations for the degree of Master of Arts and Doctor of Literature are held every three years. At the last M.A. examination 17,000 graduates competed for 380 degrees; at the last D.L. examination 8,000 competed for about 180 degrees. This is the highest degree, and can only be conferred in the capital. It is open to all Masters of Arts throughout the empire.

Peking is well supplied with Buddhist and Taoist temples and monasteries. There is hardly a street without one or more. Some of these are large, and look very imposing with their yellow or green tiled roofs.

In the north-eastern part of the city, close to the north wall, the Mongols have a very large lamasery, called the Yung-ho-kung, with 1,500 resident lamas. This building was the palace of the Emperor Yung-cheng before he came to the throne. The bath of his son and successor, Chien-lung, is still shown in the great hall. In the principal court is a square marble monument recording in Chinese, Manchu, Thibetan, and Mongol, the history of Lamaism. In the same court are maps of the universe, according to lama notions, and pictures of the six paths to Nirvana. In the great central hall the lamas assemble daily (twice a day, I think), to chant the Buddhist liturgy. This they do squatting in rows before long low benches, their missals open before them.

In the north or hindermost court is a lofty building containing a gigantic sandal-wood image of Maitreya, or the Coming Buddha, 75ft. high and 30ft. broad. It is a standing figure, and two flights of stairs only reach to the waist. A little to the north is a huge praying wheel, the same height as the image, which is set in motion when the emperor visits the temple. There are several small praying wheels or cylinders in the courts fitted with handles ready for people to twirl as they pass.

This building is a good specimen of the best Chinese architecture. The establishment is ruled by a *Gegen*, or sort of living Buddha, who is usually a Thibetan.

A little to the west of this lamasary is the Confucian Temple, or Temple of Literature. The courts are planted with double rows of venerable cypresses, some of which go back to the time of the Mongol dynasty of 500 years ago. The chief hall is a lofty building, between 40ft. and 50ft. high, supported by strong teak pillars. A shrine containing the tablet of Confucius occupies the central position. The inscription on the tablet is, "Shrine of the most holy ancient teacher, Confucius." Above the shrine is a tablet, with the inscription, "The teacher and exemplar of a myriad ages." There are other tablets, the gifts of various emperors, all lauding Confucius. The shrines of four distinguished disciples and followers are placed two on each side of the shrine of Confucius, and then a little lower down twelve more, six on either side—in all sixteen who are considered worthy to bear the great sage company. In the middle of the court, in front of this hall, are six marble monuments, borne on the backs of marble tortoises, each under a yellow tiled roof, recording six conquests by the emperors Kang-hi, Yung-cheng, and Chien-lung (1604-1777). On either side of the court is a range of low buildings containing the tablets of over a hundred famous followers of the sage, more than half being his immediate disciples. In the gateway of this court are ten drum-shaped granite stones, supposed to be 2,500 years old. They bear a poetical inscription commemorating Hsüan Wang's hunting expedition, but as they are not mentioned before the seventh century of our era their antiquity has been disputed. In the outer court are rows of upright stone slabs looking very like gravestones, but a closer inspection shows that they record the names and residences of all who have attained the degree of Doctor of Literature. The three oldest slabs belong to the Mongol dynasty. The record therefore covers 500 years. No Buddhist, or Taoist, or other heretic, however celebrated, has any place in this temple of Confucian learning.

Alongside of the Confucian temple stands the Kuo Tsz Chien, or Board of National Preceptors. It is also called the Hall of the Classics. In the broad cloisters on both sides of the court are 200 stone slabs, on which the entire Confucian classics are

engraved. In the centre of the court is a square building, in which the emperor is supposed periodically to explain the classics. It has long been unused, and the floor is deep in dust. The building is surrounded by a marble-faced moat, and in front there is a beautiful marble and porcelain arch.

A short distance outside the An-ting Men, or north gate, is a large lama monastery, called the Huang-sz. In the west court of the monastery is a dagoba-shaped marble cenotaph, erected by the Emperor Chien-lung to the memory of a high lama. He held the rank of Banjan, which is next to the Dalai Lama, or Pope of Thibet. The emperor invited him to Peking, and while there he died of smallpox. His body was taken back to Thibet, but his clothes were buried under this beautiful white marble monument. On its eight sides are engraved supposed scenes from the lama's life: his birth, entry to the priesthood, conflicts with spiritual foes, instruction of pupils, sickness and death, over which men and beasts weep. Every Mongol who comes to Peking worships at this shrine.

About midway between the north wall of the Tartar city and the north gate of the Imperial city is the Bell Tower. In this tower is a huge bell, one of five made by the Emperor Yunglo (1723-35). It weighs 120,000 pounds, is 14ft high, 24ft round at the rim, and 9in. thick. It is struck at midnight, to mark time for the city watch. There is a touching legend connected with this bell. Two attempts to cast the bell had failed. The emperor was enraged, and threatened Kuan-yiu, the officer in charge, with death if he failed again. Kuan-yiu's beautiful daughter, Ko-ai, heard the sad news, and went to an astrologer to learn the fate of the next casting, and was told that it also would fail, unless a virgin's blood was mixed with the ingredients. Ko-ai begged permission to see the next casting. The fateful moment came; the seething metal poured out in a great liquid stream. Ko-ai stepped forward, and crying, "For my father," threw herself headlong into the molten stream. One of the spectators rushed forward to seize her, but was only in time to catch one of her shoes, which came off in his hand. The horror-stricken father would have followed, but was held by strong hands; and then led away a raving maniac. The casting was a complete success, the bell was perfect, but no vestige of Ko-ai could be seen—only, whenever the bell is struck, there is a cry as of a female voice, saying "*Hsie, hsie!*" (Shoe, shoe!) It is Ko-ai calling for her lost shoe.

Another of these magnificent bells is in the Great Bell Temple, about two miles north-west of the city. It is covered inside and out with Chinese characters, being extracts from the Buddhist classics. It is a perfect piece of work. Every character is as clear as if it had been cut with a die.

A little way to the south of the Bell Tower is the Drum Tower.

This tower was built in the latter half of the thirteenth century by Kublai. It contains a big drum, on which the hours of the watch are supposed to be struck throughout the night. Time is measured, when measured at all, by sticks of burning incense, after the fashion of Alfred and his candles.

In the western part of the city, just west of the Four Arches, is a large yellow-tiled building called the *Ti-wang-miao*, or temple of emperors and kings. In this temple are tablets to all the good sovereigns, from ancient times to the present. Usurpers, tyrants, those who have been assassinated, and those who have lost their thrones, are excluded. The long array of tablets, going back more than 4,000 years, powerfully reminds us of China's long past. Here sacrifices are periodically offered to the manes of China's long-vanished but not forgotten sovereigns.

A short distance west of this temple is a large lama monastery, called the *Pai-ta-sz*, founded 700 years ago during the rule of the Chitan Tartars. It has a fine white dagoba, under which are buried twenty beads, 2,000 clay pagodas, and five books of Buddhist charms. The Mongol Emperor Kublai spent large sums on the embellishment of this monastery and its idols. It is one of the sacred spots of Mongol pilgrimage.

This monastery is near the *Ping-tseh Men*, one of the west gates. Passing out through that gate, and keeping a little to the right, we come to the old Roman Catholic cemetery, where Ricci, Schaal, Verbiest, and other great missionaries, lie buried. Ricci's is the oldest grave. He died in 1610, in the time of the Ming Emperor Wanli. It is a spot full of sacred and inspiring memories, even for those who do not approve all that those able and devoted men did and taught.

The Roman Catholics have three large churches in Peking, and one or two small ones. They have a considerable number of converts in and around the capital, mostly the descendants of those who embraced Christianity 200 years ago, when the Jesuits were in favour at court.

The Six Boards which constitute the Central Executive of the Empire are situated on both sides of the southern entrance to the Imperial Palace, the Boards of Office, Ceremony, Works, Revenue, and War being on the east side, and the Board of Punishment on the west. They are in a very dilapidated, dirty condition, and are always under water after heavy rain. It is the habit of the Chinese to put up noble public buildings, and then let them gradually fall to pieces. They are never repaired till they threaten to fall down. It is no unusual sight to see shrubs growing out of the roofs and walls of their finest buildings. There is a general lack of paint, while the reign of dirt is universal.

Situated on the fortieth parallel of latitude (39° 54' 36") Peking should enjoy a mild and equable climate. But climate

depends on other things besides latitude. Standing at the head of a great plain, nearly 700 miles long and over 300 miles broad, Peking is decidedly hot in summer, the thermometer sometimes registering 108° Fah. in the shade, though this great heat does not last long. In winter the thermometer falls below zero. Navigation closes towards the end of November, and reopens at the beginning of March. The ice is from 18in. to 2ft. thick. All who can afford it dress in sheepskins or furs. This intense cold is due to the prevalence of north-west winds from the Mongolian plateaus, and to the rapid radiation of heat owing to the dryness of the atmosphere. The transition from summer to winter and from winter to summer is gradual. Spring would be pleasant but for the frequent dust storms; but autumn is thoroughly enjoyable.

The climate is very dry, owing mainly to the prevalence of north-west winds. The fall of snow in winter is seldom more than two or three inches, and frequently there is none at all. Rain is very uncertain. Months pass without a shower. But, happily, the south-east monsoon usually brings thick clouds and heavy rains in July and August.

The dryness and the wind produce a succession of dust-storms all through the winter and spring. The wind catches up the dust and drives it along in blinding eddies, or in unbroken cloud-masses, shutting out the sun and darkening the whole sky.

Long after we had opened trade and made a treaty with China, Peking was closed to us—not even our ambassadors might reside there. It was the city of the “Great King,” and all who entered must enter as subjects, vassals, or tributaries. But in 1860 the allied English and French troops, after burning the Summer Palace, entered Peking, and in 1861 the British Minister took up his residence there.

The same year Dr. Lockhart and the Rev. J. Edkins, D.D., of the London Missionary Society, opened an hospital and mission in Peking. Other societies soon followed, and now there are three American societies and two English working in Peking. By means of hospitals, schools, books, and daily public preaching, a successful work is being done. In the city itself there are from 800 to 1,000 Church members, and in the country around as many more. A knowledge of the leading truths of Christianity and the common facts of modern science is gradually being diffused among all classes, and a period of change and progress is being inaugurated.

The only outward and visible sign of modern life and improvement in Peking is the telegraph wire. In this one respect Peking has abandoned its proud isolation and put itself in touch with the rest of the world. How long will it be, I wonder, before the railway-whistle will echo along her old palaces and

the rush of the steam engine disturb the slumber of centuries? Perhaps sooner than we expect. The snort of the "iron horse" is now a familiar sound at Tientsin, only eighty miles away, and may soon be heard in Peking. Among China's statesmen a comparatively liberal and progressive spirit prevails, and we may anticipate great progress in the near future. Our trade with China is already immense, but when China has railways that trade should be doubled and trebled. Quick communication will also greatly strengthen the central government, and bring the whole empire in close touch with Peking.

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EXPLANATIONS OF MAP OF PEKING.

Peking consists of two cities—the inner or Tartar City, and the outer or Chinese City—divided by a common wall. Together they are twenty-three miles in circuit. Population is about three-quarters of a million.

The Tartar City was built by the Mongol Emperor Kublai Khan, in A.D. 1267, and reconstructed by the Ming Emperor Yung-lo in 1409. It consists of three nearly concentric walled squares—the Tartar City, the Imperial City, and the Purple Forbidden City or Imperial Palace.

The walls of the Tartar City are 45½ft. high, 47½ft. broad at the top, and are nearly fourteen miles in circuit. It has nine gates, each protected on the outside by a semicircular wall or *calleiente*, and surmounted by a lofty tower over 100ft. high, bristling with gunholes. A similar tower stands on each of the four corners of the city. The principal streets are wide, and run the entire length of the city. From these the smaller streets branch off at right angles. The principal buildings are the

Observatory, Examination Hall, Great Lamasery, Confucian Temple, Bell and Drum Towers, Temple of Deceased Emperors and Princes, Pai-ta-zs or White Dagoba, and the Six Boards. In the suburbs, north, are the Altar of Earth and Yellow Temple; east, Altar of the Sun; west, Altar of the Moon.

The Imperial City is a walled enclosure, nearly in the centre of the Tartar City, six miles in circumference. It is intended as a protection to the Palace.

The Purple Forbidden City, or Imperial Palace, occupies the centre of the Tartar and Imperial Cities, the main entrance projecting southwards. The palace is surrounded by a high wall, and a deep broad moat over two miles in circumference. The pleasure grounds and lakes are to the north and west.

The outer or Chinese City adjoins the Tartar City on the south side, and overlaps it on the east and west. It is a parallelogram, about five miles long by two broad, and was built by the Ming Emperor Chia-ching, in A.D. 1543. The walls are about 22ft. high, 15ft. broad at the top, and $9\frac{1}{2}$ miles long. Much of the city is waste land. Streets are mostly narrow. Chief buildings are the Altar of Heaven and the Altar of Agriculture. The western portion stands on the site of several ancient cities—Yiu-chou, A.D. 500; Yen-ching, A.D. 936; and Chung-tu, A.D. 1125.

English Ship Canals.—PROPOSED WATERWAY BETWEEN BIRMINGHAM AND THE HUMBER.—A project of immense importance to the Midlands is being quietly but resolutely prepared by a few enterprising commercial men, and will in all probability be introduced into Parliament in the shape of a bill during next session. We allude to the Tame Valley and Trent Navigation Scheme, the object of which is to connect Birmingham with the river Trent by means of a short canal, and thus secure for steam propelled barges cheap and ready access to the German Ocean. All the details of the scheme have not yet transpired, but some of its leading features may be broadly stated. The canal which is to connect Birmingham with the river Trent is to be 80 feet wide, and the river is to be dredged and widened to the point at which the Lower Trent navigation commences. From Wilden Ferry there is a stretch of the Trent, twenty miles in length, over which the Marquis of Anglesey has "the navigation rights with toll-free access to the German Ocean," and these rights have, it is stated, been virtually acquired by the promoters of the enterprise. The navigation of the Lower Trent right to the Humber, and the absence of toll-dues (goods being transferred from the barges to the ships' holds in the open Humber mouth) present advantages of so great and so substantial a character that they cannot well be exaggerated. It appears that no engineering difficulties of serious magnitude threaten the new and bold project. Between Water Orton and Posthill there must be a deepening and widening of the river's bed, and certain bends in the river will have to be cut away, old-fashioned bridges with massive stone piers will have to give place to girder bridges of considerable span, and in some places huge embankments of concrete will be required to minimise the effects of floods. The Warwick Canal Company, which has a network of waterways in the vicinity of Birmingham, promises generous co-operation, and no difficulty will be presented by the Drainage Board of that town, through whose sewage farm a short canal will have to be made en route to the terminus, which will be a lock of 160 boats' capacity on property now belonging to the Corporation at Nechells. The scheme, as foreshadowed, will give Birmingham a waterway 7 feet to 9 feet deep and 80 feet wide to the North Sea with barge trains computed to carry 400 tons per steam tug. It is estimated that merchandise can thus be conveyed from Birmingham to the estuary—170 miles—in 24 hours at an average cost of 8s. per ton, thus effecting an enormous saving on the excessive rates now charged by the railways. Some idea of the economy to be effected may be gleaned from the fact that one Staffordshire town on the route—Burton-on-Trent—calculates on a saving of £100,000 a year. A good deal of opposition to the scheme is sure to be raised on behalf of the railway companies, but the interests of a total population of three and a-half millions ought to weigh well with the Legislature in considering a scheme which is of such paramount importance to the industrial life of Birmingham and the Midlands. We shall await with interest fuller particulars of the projected new waterway.—*Staffordshire Advertiser*.

FERNANDO PO, WEST AFRICA.

By the REV. THEOPHILUS PARR, M.A.

[Addressed to the Members in the Memorial Hall, February 6th, 1889.]

FERNANDO PO is an island lying off the West Coast of Africa, in the Gulf of Guinea, situated between latitude 3° and 4° N. and longitude 8° and 9° E. Speaking roughly, it is about 120 miles in circumference, measuring from north (Point Bullen) to south (Melville Bay) 35 miles; from west (Point Bullen) to east (Cape Horatio) 25 miles. From the deck of the steamer making its way down the coast Fernando Po is seen at a long distance. It is an island consisting of a high mountain ridge, the highest peak of which is over 11,000ft. above sea level. On the continent immediately opposite is the twin mountain of the Cameroons, whose summit is still higher, over 13,000ft. It does not require much poetic imagination to see in these two mountains the great pillars of the gate to the southern seas. Approaching nearer, one is struck by the uniform dull colour of the land of the mountain sides, and closer inspection shows it to be covered with forest from the sea-beach to within a very short distance of the summit of the mountain. The shape of some of the mountain peaks and the black rocks that line the coast speak of volcanic influence. In my travels over the island I found several craters of extinct volcanoes. Some of the old people are quite positive in their assertions that some years ago they saw fire and smoke coming from the summit of the twin mountain of the Cameroons. Travelling about the island is difficult, insomuch as there are no roads save the narrow winding paths made by the natives through the dense jungle. There are deep chasms to be crossed. These chasms invariably run in a line downward to the coast. The traveller has to descend one side, and, crossing the mountain stream that runs along the bottom, climb the other. Fortunately there are small trees and brushwood growing on the sides which give a hold, but one soon feels that boots are at this point only an encumbrance, and that the native, who can hold on by his toes as well as his fingers, has a decided advantage. The soil is mainly a dark vegetable loam, with here and there a bed of clay. Sinking a well for water at the bottom of one of the valleys in the George's Bay district, I passed through, perhaps, 8ft. of this rich dark soil, then 5ft. or 6ft. of clay with a little gravel, and then came to

the hard volcanic rock. The clay in many places seems admirably suited for building purposes. One of our missionaries, indeed, made bricks with it, with which he built an outhouse, which has stood the weather for some eleven or twelve years. Running along the shore one can detect patches of lighter green colour varying the scenery of the mountain side. These are the yam plantations made by the natives, the yams being their principal food. The yams of the North-west Bay district have a great reputation on the coast for sweetness and delicacy of flavour. Near the beach we can see the palm trees of various sorts, cocoa-nut palms, oil-palms, &c., bananas and plantains, orange trees, and others. We have found in the woods *lignum vitæ*, the indiarubber tree, satinwood, mahogany, and other hardwood trees. At Santa Isabel and North-west Bay there are flourishing plantations of cocoa, and the export of this product is increasing year by year. Tobacco, coffee, and cotton have also been grown; but I cannot speak very favourably of Fernando Po cigars—they seemed very nice cigars “to give away,” while as to the cotton, I am not aware that its quality has ever been tested by spinning. The principal export is palm oil, some thousands of tons being sent to England every year. The most cursory glance will show that the resources of the island are yet to be developed, and the production of such things as palm oil and cocoa, to say nothing of tobacco, cotton, and coffee, could be increased a hundred-fold. The fertility of the soil may be judged by the fact that after cutting down the brushwood and high cane grass round a hut, which I used as a lodging place in one of the villages, in the interval of three months which elapsed before I could visit the place again, the grass had grown 5ft. high. The climate is, of course, tropical, having a rainy season from April to August, and a dry season from September to March. As a place of residence it has been called the Madeira of West Africa. It certainly is more healthy than the delta of the rivers on the continent, being an island and mountainous. One may, by ascending, find a temperature low enough for comfort, while the sea breezes are fresh and invigorating. The European residents are subject to the coast fevers, and occasionally there has been an epidemic of yellow fever. A vast improvement could be made at little cost by the draining of the comparatively small areas of swamp and marsh that are to be found in various parts.

Landing at the chief port, Santa Isabel, the visitor is struck by the absence of beasts of burden and vehicles. The streets are grown over with grass. There are a few half-wild bullocks careering in the bush near the town, and a few stray pigs may be seen; but horses and cattle cannot be kept in vigorous health. In the forest are monkeys, squirrels, antelopes, porcupines, snakes of every description (which by their abundance

amply compensate for the absence of beasts of prey), and birds of gorgeous plumage. The sea teems with fish, and at the season of the year the whales visit the coasts, also turtles.

Santa Isabel has a heterogeneous population. There are the missionaries of the Primitive Methodist Church, Jesuits of the Roman Catholic Church, the officials of the Spanish Government, two or three English and Scotch merchants, a few Portuguese, and occasionally a batch of Spanish convicts. These make up the European population, which forms, perhaps, one-tenth of the whole. The coloured people of the town are of various West African tribes: they are the descendants of recaptured slaves. The island was discovered in 1471 by a Portuguese named Fernandez. It was ceded to Spain by a treaty signed in 1778. An expedition sent immediately afterwards, partly to colonise and partly to secure slaves for the working of the Spanish plantations in South America, miserably failed. Of the 150 who set out, only 22 survivors returned to Monte Video. The aborigines of the island could not be caught. It was useless attempting to hunt them in the forests. It would be easier to catch and train the monkeys. Like other mountain tribes, they are independent in spirit. As a consequence of this failure, the island was abandoned by the Spaniards till the year 1843. During this time the island was often visited by British ships, which called for fresh water and a supply of yams and fruit. A settlement was made by Captain Owen, of the British ship *Eden*. The town now called Santa Isabel was laid out and called Clarence. To this town were brought several shiploads of slaves who had been recaptured by the British men-of-war. A Spanish expedition came in 1843 to reclaim the island. An English gentleman named Beecroft was made governor, and received an appointment also as British consul. Not a single Spaniard resided at the island till 1856, when a number of Jesuit missionaries came. No wonder, therefore, that a number of these coloured people resolutely insist that they are English subjects. You may meet in the streets a gentleman, with a skin as black as your boots, and, asking him "What countryman are you?" may receive the answer, "I be Inglis man, sah." For reasons which, perhaps, we need not here enter upon, many of these people have a preference for the British Government, though in the town itself they might hesitate openly to avow it. Beecroft was succeeded in the governorship by Lynslagen, a Dutchman, so that the advent of Spanish governors and officials is of very recent date.

These coloured people of the town, belonging perhaps originally to some twelve or thirteen different African tribes, make a broken English their common meeting ground of language. They are the merchants of the island, acting as the intermediaries between the British houses and the aborigines who gather the nuts and make the oil. A few of them of late have

begun to trade direct with Manchester houses, and one of these men has at North-West Bay a cocoa plantation and trading station which is one of the finest in West Africa.

The aborigines of the island are called Bubis. The native word for man is Buyé and possibly, some Jack Tar hearing the word thought Bubi was near enough. There are none of them living on the coast anywhere round the island. They say they catch fever if they sleep near the beach, and I have known several cases of severe and long-continued fever occasioned by this which amply justified their statement. Their appearance is certainly not prepossessing. They have a fashion of daubing their bodies all over with finely-tempered clay, mixed with the juice of a plant that makes it red. One never sees the real colour of their skin unless they should have been out for two or three hours in a heavy rain. The tribal marks on the face are parallel lines cut in the cheeks and forehead. With the same mixture of clay they sometimes plaster the head, so that if the direct rays of the sun cause sunstroke, one ceases to wonder that they never suffer from it. Respecting their habits and customs I cannot on every point speak with absolute certainty. I was not there quite three years. Had I been on a visit of three weeks I should doubtless have been able to collect a vast amount of most valuable information (?) When a man has been with this people a few days he is apt to think he knows everything about them but after a residence of nearly three years I had reached that stage when one feels it necessary to have a personal experience of another twenty years before venturing to speak with assurance. The tribal marks on the face are the same as those of the Okoos of the Yoruba country up the Niger river, but I could not discover any tradition amongst them of any migration in generations gone by. In fact, none of those with whom I came in contact seemed to have any idea of any world beyond their own island. The white men came from somewhere over the sea, but it could not be compared with their own territory. The cloud-looking Cameroons mountain, that can be seen on a clear day, was simply "yonder." I have been in villages where it was difficult to persuade the people that I was not a demon from the spirit world. In other places, however, it was of the utmost importance that I should explain to them that I was an Englishman and not a Spaniard, for they seem to preserve a very vivid recollection of the attempt to capture slaves made over a hundred years ago.

Their religious system, of course, is the usual Fetichism. I found great difficulty in obtaining accurate information as to their real beliefs. They manifested great unwillingness to speak to a foreigner on such matters. They are not quite sure what mysterious power a white man may have over the spirits, and hence are prudently cautious in not letting

him know too much. And we can also understand how difficult it will be for many of them to give any explanation of their religious ideas. Not a few intelligent and educated Englishmen find the same difficulty. That they have faith in a number of spirits, and seek to propitiate these spirits by sacrifices and charms, is evident. You see the necklaces of bits of bones and feathers on the people. The entrance to the village is an archway formed by two boughs bent together and the skull of a goat in the centre. Before every hut is a short post, on the top of which is a bowl of water in which lie bones and nuts. You pass near the beach, at the side of the path, a heap of sticks and stones to which every native makes a contribution on his journey to the trading station as a propitiatory offering for prosperity. In some quiet spot in the forest you may come upon the ashes of the fire, the bones, and the remains of the victims offered in sacrifice, and the post to which the string is yet hanging that bound the victim. They have very definite ideas about inspiration. You hear a man making an unusual grunting noise, and are told that it is not indigestion, as you might reasonably suppose, but the "spirit" within him. You may meet a procession, at the head of which a woman is marching who utters the same sounds. Her body, daubed with the usual red clay, is further decorated by lines of yellow clay marked in the lines of the main bones of the body, so that she looks like a walking skeleton picture. On her head she carries the skull of a goat or sheep. They have the customary African superstition about the evil eye and the evil breath of witchery. On festal occasions each frequenter puts on a big belt of goatskin, which, on his attaining puberty, was given him by the priest as a sort of pledge of loyalty to the local deities. Superstition dies hard. It is not unusual for one of the civilised educated coloured people of the town to go to one of these Bubi priests for information concerning lost property, or to inflict vengeance for some wrong. They have their religious ceremonies—a dance, called the Bwala, is partly military and partly religious. You may find a village deserted by its men and boys, and be informed as an explanation, that they have gone to make a great bwala—that is, to organise a grand hunt in the forest for game, and then offer the slain animals in sacrifice, roast them, and eat them. Of their ideas of the future state I know but little, for even the converted natives seemed to dislike speaking of it. They speak of the world of spirits, and that is about all you can learn.

In social life polygamy prevails. One woman, however, is held as chief wife. The chief of the district where my mission was situated derived his authority from his chief wife, who was the daughter of the former chief. A wealthy man will have a harem of women of all ages, down to the almost baby, who, having been weaned from its mother, has been secured and is

growing up with his own family. These are obtained by negotiations with the parents and the bestowment of a gift as a recompense to them for the loss of her services. The present necessary to obtain a wife varies according to the physical abilities of the lady concerned and the social position of the parties contracting. A pound or two of tobacco or a small seven-pound keg of powder would be sufficient in some cases, while for another perhaps two or three pounds worth of goods would be demanded. When the price has been paid, she is looked upon as the property of her lord and master. In estimating his wealth a "gentleman" will say he has so many goats and sheep and women. If a man dies the women or girls, as it may be, of his harem, cannot be married to any other person, but are, after the period of mourning, sent out on the community to live the life of shame, half of the proceeds of the traffic going to the family of the girl and the other half to the chief of the district. It is impossible before a mixed audience to describe the evils of this horrible system that panders to the basest passions of human nature. With all this we had great difficulty in persuading the girls, who had been taught in our school, that they would each be happier as the single wife of one man. Their argument was reasonable enough. The women have most of the work to do. If there is only one she would have to work too hard, besides which she will have to bear the brunt of all the master's anger when he is vexed. Human nature, however crushed and degraded, is much the same there as everywhere. As we became familiar with the families of the district it was evident to us that there was the same difficulties in persuading a number of these poor women to live in harmony and peace as would arise by a similar experiment with ladies of any other nation. The "master" found that "the power of the stick" was sometimes necessary as a last resort. In seeking to save them from this evil we had to face the difficulty often suggested by the head of the house. "If I give up all my wives but one, what will become of them? The law will still hold me responsible for them; and then further, if I am but to keep one, which shall it be?"

Our great hope was in the training of the young, and in this particular we were gratified by success. We considered that the first Christian marriage was as great a victory as the first baptised convert from Fetichism.

These Bubis are, as a tribe, exceedingly low in the scale of humanity—in many particulars greatly below the level of the tribes on the coast opposite. The poorer dwellings, the absence of any reasonable method of medicine, the lack of ambition for fine appearance, marked their inferiority. Yet it was interesting to note their progress. As a people we did not think them so quarrelsome and cruel as some tribes on the coast. We never considered it necessary to carry weapons of defence, and in our

journeyings have, night after night, slept peacefully on the ground of their huts. We never had any trouble with any of them, only on those occasions when some "gentleman" had been partaking too freely of the white trader's rum, and came on the mission grounds to show it. A missionary in his life must play many parts, and occasionally we have had to be policeman, judge, jury, and executioner in a short half minute.

While there, a quarrel broke out between the people in two districts of the north-west of the island. A chief, wishing to obtain the most powerful charm possible, had negotiated with a man near whose hut the bones of an executed murderer were buried. These bones were taken up and removed to the hut of the chief, whereat the people of the district to which the man had belonged raised an alarm and threatened war if the bones were not returned. Their "wars" were never signalled by any open battle of numbers, but each warrior proceeds independently, trying to steal upon and kill some of his enemies, while watching not to be caught himself. And thus this practice of wholesale assassination in times past had gone on for years. Fortunately, on this occasion, the head king of the island intervened—sent a deputation down to investigate—a council of the chiefs of the neighbouring district was called to assist in the adjudication—the bones were brought back—the man who sold them was fined all his goats, and sheep, and yams, which fine was forthwith exacted, cooked, and eaten by the assembled jurymen—and all were satisfied. We were glad to have the matter settled so peaceably.

It is impossible to estimate the number of the aboriginal population, and so we cannot say whether it is increasing or decreasing. It is notorious that the people nearest the town, where the rum is so accessible, are the most degraded. There is as much physical difference between the Bubi of the town district and the Bubis who live in the south as between the brawny Scotch Highlandman and an undersized factory operative of Lancashire. We found the children quick to learn in the schools, and the men ready-witted and intelligent on matters within their knowledge. Some of the imbecilities of the so-called nigger witticisms given in this country would be as much beneath the intelligence of the average Bubi as it is beneath the average English working man. They have been called by some who have known them the laziest people in creation, but it must be remembered that hitherto they have had no motive for work. The banana grows spontaneously. The yams only require a very little labour during two months of the year. The Bubi's house can be built in a day out of materials close at hand in the forest. If you speak about clothes, he will pertinently ask, "Of what use are they? I am warm enough without them." As to decency, he sees no more harm in his people being without

garments than in the goats and sheep being unclothed. What can you offer him, therefore, to induce him to work? He only requires of the white man a gun and ammunition to kill the game when he goes hunting, and a knife to carry in the sheath on his arm. As to the rum, which forms so large a part of the goods which the merchant gives in exchange for the country produce, it seems a degradation of the term to call the traffic by the name of "trade." Wherever it is obtained by the natives its use tends inevitably to their demoralisation and destruction. In all our journeyings amongst the people we never saw a native drunk with the palm wine of his own country. In every case the drunkenness was the result of "trading with the white man." We were so impressed with the evils of this traffic that, much as we felt our loneliness, and thoroughly gentlemanly as might be the personal character of the white merchant, we often were led to wish that the natives had never known the English trader. Rum dealing is not trade: it is money on the one side and destruction on the other.

On this line of commercial interests we think we can make out a good case for mission work. It was interesting to note, as the people were gradually won to attend the mission services, how the demand for Manchester prints and calicoes increased. We did not preach that man should be clothed; but as they heard the Gospel, somehow these men felt that they must be clothed, and thus the demand was created. To obtain these articles of clothing and household furniture our native converts have cleared the ground and made large cocoa plantations. They have each year sown a larger area with yams, and have been the first of their countrymen to engage in the fishing trade.

We found the chiefs and people quick to appreciate the importance of the education of their children, especially in view of their trading with the white men. To the West Coast native the English language is the language of literature, commerce, and political power. Men who had not the remotest intention of becoming Christians themselves, or of allowing their children to do so, were anxious that their children should attend our schools and become learned in the "white man's wisdom."

Having no books to assist us, our work of learning the language was a groping in the dark for a long time, and we were conscious of many imperfections in our speaking even to the last. The most prominent characteristic is the principle of "alliteral concord." "An assimilation which takes place between the initial letters of words grammatically connected in a sentence, the word governed generally changing its initial into that of the word by which it is governed."

We found the young men of the mission quicker to learn our language than we were to learn theirs; and in the course of ten years' labour have succeeded in training some twenty or

more of them who can now read and understand their English Bible and act as interpreters.

After having somewhat mastered the language of the people of the North-west district, we found ourselves unable easily to converse with the people of other districts—the dialects differing as widely as the dialects of broad Yorkshire and Somersetshire.

Like all other missionaries we found a little medical knowledge of immense value. Being a day's boat voyage from civilisation, or more if the weather was bad, we were compelled to practise medicine both for ourselves and the poor people round us, and, if need be, could secure a large number of testimonials of the benefit received by our simple treatment, the most satisfactory to us being the transformed character of some who, having received benefit by the medicine for the body, were thereby won to bear and receive the hopeful message for their souls.

It is certain that with the work which might be done by an enterprising and vigorous government in the making of roads, construction of harbours, drainage of marshes, &c., together with the efforts of legitimate commerce, and, may I not add, the strenuous labours of a practical Christianity, Fernando Po may become the gem of West Africa.

Winter Travel at Davos.—I cannot do better than continue these observations with some account of my personal experiences upon the mountain roads. With this object in view, it will be well to describe the mode of travelling in use here. The snow-tracks which cross the higher passes are very narrow; and for this reason, little low open sledges drawn by one horse are commonly employed. The sledge is a box, shaped somewhat like a car in a merry-go-round, into which a pair of travellers are shut by means of a wooden frame or lid moving up and down on hinges. This lid rises to the breast of a seated person, and protects his legs from falling snow. The upper part of his body is exposed. When the sledge upsets, which is not unfrequently the case, the whole falls quietly on one side, and discharges its contents. The wooden frame or lid, being movable upon its hinges, enables a man to disengage himself without difficulty. The driver stands upon a ledge behind, passing the reins between the shoulders of the passengers. There are no springs to the vehicle, which bumps and thumps solidly in the troughs of the road, dispelling all illusions as to the facile motion of a sledge. If it is needful to pass another vehicle, the horse plunges up to his belly in soft snow upon one side, then struggles furiously, gains his feet, and lifts the sledge with quick spasmodic effort to the beaten track again. These sledges carry no luggage. A second horse is used, which follows close behind, and draws a truck on runners laden with all kinds of baggage. He has no driver; and the result is that these luggage sledges frequently upset. It is always safest to travel with the post in winter, because the horses know each yard of the road from one stage to another. But a nervous traveller may even thus be exposed to trials of his courage; for economy makes the postmaster provide the smallest possible number of postillions, and passengers are sometimes sent across a mountain in a sledge without a driver, following the sledge in front. I once crossed the Julier in a dark night of January without a postillion and without any reins to guide the horse by. My reason told me that the beast knew his business better than I did. But, none the less, I felt forlornly helpless when he was floundering about in depths of snow I could not realise. It is always best to take things as they come, however; and I comforted myself by reflecting that even an Englishman is a parcel which postmasters are bound to deliver safely at its destination.—*Cornhill Magazine.*

THE SEA AND SHORES OF AZOV.

By the Rev. ALFRED COLBECK.

[Read to the Members in the Memorial Hall, March 6th, 1889.]

I DO not claim to be able to say anything quite new about the sea and shores of Azov. This sheet of water, with the land on every side, is perfectly well-known. The fascination of many geographical subjects is in being able to tell new things. Remote and partially explored regions awaken deep interest in the minds of all geographical students; but when the regions are comparatively near, and every part of them has been surveyed and carefully marked down in maps and charts, and when the manners and customs of the people inhabiting these regions are generally known, the only interest is in a record of personal observation. By every such record we gain a new point of view. We see familiar objects in a fresh light, and if the fresh light invest these objects with unexpected radiances, we may be thankful for it, and it may prove worth having.

In the summer of 1884, after a short sojourn in the Grecian Isles, and a shorter rest at Constantinople, I found myself approaching the south-western shores of the Crimea. The dark blue waters of the Euxine gradually changed in colour, assuming lighter and lighter hues, as the vessel proceeded northwards along the Crimean shores. As we drew near to the Bay of Kertch the waters became green, indicating shallower seas and a dark sandy bottom. We rounded a low-lying fortified promontory into the bay, and let the anchor slip in about twelve fathoms of water.

The scenery was a perfect contrast to the scenery on the southern shores of the Black Sea. No cliffs, no hills, no varied vegetation, but sandy beaches that sloped upward into the greenest pasture land, unrelieved by a single tree, and dotted with browsing cattle. The shores of the bay swept round in an almost faultless semicircle, and in the bend lay the grey town. Its square-built houses stretched along the margin of the sea, and the dome of its mosque-like church, with the gilded cross surmounting the crescent, as in other once Mohammedan towns, lifted itself above the tide.

To the eastward nothing was to be seen but very low land, which lost itself to the vision in marsh and flood, with a house here and there, lonely, and as if stranded.

Kertch is an important official town, standing at the gates of the Sea of Azov, to permit or forbid entrance into these Russian waters. The soldiers who man the fortifications find homes here, and also the government medical officers and examiners of cargo, whose duty it is to inspect ships' crews and grant *pratique*, and to seal up all prohibited articles except what are absolutely necessary for the use of the crews until their return through the Straits of Yenikalé.

Having arrived late in the afternoon, we were not fortunate enough to receive sanction to proceed that day. We were obliged to remain overnight under the supervision of two young soldiers who were sent aboard in the evening. Early next morning, however, we were visited by the various officials and their assistants, who, notwithstanding the trying nature of their visit, and while insisting with quiet firmness upon a complete inspection of the vessel, were the pink of politeness. We were deemed healthy, and none of our belongings were placed under ban, and, as soon as we had courteously bidden them farewell, we weighed anchor and steamed away for the Sea of Azov.

The Straits of Yenikalé are not more than four miles wide in any part, and the navigable channel is so narrow as only to admit of two moderate-sized vessels passing each other. The channel is carefully indicated by floating poles, and there is no danger while keeping well between them. Should one of the poles be accidentally carried away, the fixed fine of roubles must be dutifully paid, that, without expense to the government, a new pole may immediately take its place. The elaborate fortifications of the Bay of Kertch, and the difficult navigation of the Straits of Yenikalé, make the Sea of Azov a tolerably safe naval shelter.

Entering the Sea of Azov through the Straits of Yenikalé the waters continue to change their hue. The pleasant green merges itself into a yellowish-brown—the not very attractive but prevailing hue of the Sea of Azov. The waters become still shallower, and the bed of the sea darker; but as the straits are left behind the ruffled surface of the waters stretch away on every hand, and the land only becomes visible again as we draw near to the anchorage ground about the entrance to the Gulf of Taganrog.

The Sea of Azov is pear-shaped, its converging shores running northward, with an inclination to the east, and terminating at the mouths of the Don. It covers an area of 14,000 square miles. The coast line is comparatively unbroken by bays and islets, with the single exception of the Putrid Sea, *the Siwash*, on its south-western border, whose still waters, reeking with unhealthy exhalations, are closed in by the long and narrow tongue of Arabat. In no part of the Sea of Azov are the waters more than eight or nine fathoms deep, and, as we proceed north-

ward, they gradually diminish in depth to four or five fathoms. In the Gulf of Taganrog only small tugs and flat-bottomed lighters can ply with any safety. All merchant steamers and trading vessels are obliged to anchor in the entrance of the gulf, fully twenty miles from Taganrog, and from the mouths of the Don still further; and all cargo has to be brought alongside the steamers and shipped in the open. The weather is not always favourable to this method of taking in cargo. Considerable delay, in the early and late seasons, is sometimes occasioned by stormy winds. The anchorage, too, is not always of the safest, for, while the bottom is sandy, the waters are so shallow as to be violently agitated in strong gales, and, now and again, the very bed of the sea is exposed between the leaping waves.

The waters of the Azov are not so much a sea as a widely-extended estuary of the river Don. The Greeks and Romans called it a lake. In area the Azov may very well be called a sea, but its waters are fresh—the waters of the river spread over a wide plain; and the lower orders of the Russian people, who work aboard the steamers, stowing wool or shovelling grain, scruple not to dip it up from the ship's side and use it for cooking purposes. I have seen them often throw over a bucket, haul up the water, and pour it into their iron cooking pot, in which they prepared their stew of strongly-smelling vegetables, and dark-brown bread, with a few shreds of broken meat to keep up the pretence of stew and save its character.

For three or four months every year the Sea of Azov is one unbroken sheet of ice. The ice of South Russian winters closes up for some time ports like Odessa, directly on the Black Sea. We might, therefore, expect that the fresh shallow waters of the Sea of Azov would easily become ice-bound, although, in milder winters, the ice is treacherous on account of the currents under the ice caused by the constantly flowing waters of the Don. The southern portions of the floe have been sometimes sucked through the Straits of Yenikalé, and then the ice has broken loose from the shores and commenced to float downwards toward the Black Sea. To the fishermen, who drive their sledges long distances over the frozen surface of the sea, and pierce the ice for fish, this liability of the ice in milder winters to float away is a source of danger. Three years ago last January a thousand fishermen, with the winter belongings of their trade, were carried away, and while many were rescued from their melting raft, others were drowned in the deeper waters.

Not much can be said for the Azov as a hunting ground for the naturalist. The most interesting denizen of its waters, commercially as well as scientifically, is the royal sturgeon. These widely-extended fresh and shallow waters furnish an excellent spawning ground for this large and valuable fish, and the Russians in the vicinity make the most of its presence by cap-

turing and converting it into *caviare* and isinglass. Sturgeon may be found in any part of the Azov. I have seen a very large one landed at Taganrog; and among the ordinary welcome viands at our table, beautifully cooked by an English lady resident in Taganrog, were sturgeon steaks—a dish that would be fragrant to the nostrils and delicious to the palate of the most fastidious epicure. The most famous sturgeon fishing ground, however, is on the east coast, between Cape Dolgava and the Straits of Yenikalé, affording a comfortable livelihood to the inhabitants of these flat and marshy regions.

Another interesting frequenter of the Sea of Azov is the pelican. This large bird, ungainly on the shore, but very nimble while fishing, may be seen in flocks, and is by no means timid at the presence of man. The first I observed, sitting on the water some distance away, I took to be a swan. When I saw a flock of them on the wing, however, following one after another, not in a direct line, but obliquely, I knew them to be pelicans. They will allow one to approach quite near, if sufficient caution be exercised, and thereby afford opportunity for carefully watching their habits; and the adroit aim and force with which they seize the passing fish, and transfer its wriggling body from the water to their pouches, considerably enhances one's opinion of the qualities of this somewhat stupid-looking and very melancholy bird. These pelicans breed among the marshy lands of the south-east, and doubtless pass backwards and forwards over the depressed wet plain between the Azov and the Caspian.

The enthusiastic entomologist would find the Sea of Azov and its adjacent lands, in the summer time, a gathering-ground not to be despised.

The extraordinary phenomenon of mirage may be seen to splendid advantage in and about the Sea of Azov. Objects below the horizon are painted on the morning mists, not only in natural size, but sometimes in the most gigantic proportions. The phenomenon may be observed at sea as well as on land, and the optical illusion occasionally produces a curious mental effect. One morning I stood on the deck watching a small tug on its way to Taganrog. It approached the horizon, and I was every moment expecting to see it dip and vanish. But, to my astonishment, it crossed the horizon, and continued its journey in mid-air. I could hardly trust my vision. I took the glasses, and examined it, but on it went through the air. The atmosphere was perfectly still, and, as the small vessel receded, I became aware of two straight lines of smoke, one from the funnel to the point where the tug had crossed the horizon, the other vanishing at an opposite point in the air. I watched the lines widen, and the tug grow smaller, and at last beheld it vanish altogether in the heavens. It really seemed as if the tiny craft had departed on some aerial voyage, and might come back again

one day with information about the scenery and inhabitants of the north star.

With the exception of the sturgeon fishing ground in the south-east, the Sea of Azov owes its commercial importance to the towns on its western coast—Berdiansky, Marianople, and Taganrog. Of these three towns, the last named, founded by Peter the Great in 1688, is by far the most considerable, boasting ten churches, and a population of nearly thirty thousand souls. Its historical associations, especially those which link it with the closing years and death of Alexander I., are full of interest. The town is built on flat land lying back from marly cliffs, which here lift themselves above the water. There are very few good buildings, and until recently even the main street was unpaved, although, like the streets of all Russian towns, those of Taganrog are wide and straight, and almost invariably run at right angles. The conspicuous exception to the poor architecture is a beautiful cathedral, standing in a large square on the highest part of the plateau, and in the centre of the town, proportionate in its external appearance, and richly adorned, after the manner of Russo-Greek churches, inside.

The commercial importance of Taganrog, however, is relative; and were it not for the busy and much larger town of Rostoff, about thirty miles up the Don, with which Taganrog is directly connected by rail, and from which its supplies are drawn for the steamers in the roads, Taganrog would soon sink into insignificance. It is really the port for Rostoff, and the towns lying further back but within the basin of the lower Don. This noble river runs through the remarkably fertile grain tract of decayed vegetable matter which largely constitutes the commercial wealth of South Russia; and down this river the broad and shallow lighters bear their burdens of grain to the steamers lying away in the Taganrog roads. Grain is not the only produce of this district. There is a considerable trade in wool, hides, tallow, &c.—and while the working part of the trade is mostly conducted in Rostoff, and the towns further up the river, the business transactions centre in Taganrog. Were it possible to dredge a channel for steamers into the Don, so that they might proceed direct to Rostoff, Taganrog would shrink into a village; but on the bar at the mouth of the deep and wide river there is only four feet of water, and while this bar remains unaltered the prosperity of Taganrog is secure.

The old town of Azov, which gives its name to the sea, built upon the older site of the ancient city of Tanais, on an elevated ground opposite Taganrog, several miles from the margin of the sea, and where the southern branch of the Don breaks off to form the delta. Long years ago it was the only

important town on the Azov. The little commerce of the district passed through it; but it was important not as a commercial town so much as a strongly fortified military station, occupied first by one people and then by another, until at last captured and added finally to Russia by Peter the Great. The fortifications are now in ruins, and the group of miserable cots can hardly be dignified by the name of "town."

Doubtless, along the western borders of the Sea of Azov, lay the routes of some of those Asiatic hordes, who, like tidal waves, have again and again swept into Europe and receded, leaving traces of their devastations behind them. There are many tumuli, curious mounds, twenty-five to thirty feet high, surmounted by roughly chiselled granite sphinx, in the neighbourhood of Taganrog, running in a north-easterly and south-westerly direction, not only along the western seaboard, but across the isthmus of Perekop into the Crimea, and across the Don into the rolling steppes beyond. These tumuli have been the subject of much conjecture; but the most probable explanation of them is, that they were landmarks directing the wandering hordes across the wastes where natural means of direction are very scanty.

While in these mounds we may have traces of Tartar invasions and evidences of their established routes between Europe and Asia, we have more reliable traces in the ethnographical features of the people inhabiting the region of the Azov. The long occupation of this region by the Golden Horde has most certainly left its traces in the facial expression of the people. The various tribes of Cossacks in the vicinity, and more especially the Calmucks, who are only a short distance away, retain the personal appearance and the pastoral tastes of their nomadic forefathers. The Cossacks leave the trade of the Azov to other hands. Mixed among the Cossacks are many Muscovites who have gravitated southwards, the poorer people among them to find employment in connection with the different trades; but the management of the trades—the buying, and selling, and getting gain—is mostly in the fingers of foreigners, Jews, Greeks, and English predominating.

Should the Straits of Yenikalé continue navigable, and the Sea of Azov become no shallower, its commerce will be maintained, and to a certain extent developed, although its ports can never successfully compete with other ports more easily accessible, and directly on the Black Sea. Among South Russian ports Odessa stands without a rival, and Nicolaieff on the Bug is a finer town, and has a more favourable mercantile situation than any town within the Straits of Yenikalé. Both Odessa and Nicolaieff are well connected by rail with the interior. They draw their supplies from much the same region as the ports of the Azov. It would seem as if the Azov were filling up, but

the process is very slow. Centuries ago its waters are known to have been very shallow, and yet within a lifetime vessels could approach much nearer Taganrog than it is possible for them to do now. Immense quantities of gravel must be annually washed down the Don, and deposited in even layers over the bed of the sea; and, unless the current through the Straits of Yenikalé is strong enough to clear the bed and scatter the gravel in the deeper waters of the Euxine, the Sea of Azov must become shallower, and in the course of ages converted into extensive reaches of marshy plain. Should this process be going on, the future of the Azov region is not likely to be a prosperous one. It cannot be so prosperous, even should it retain its present natural features, as the seaboard of the Euxine to the west of the Crimean peninsula. But if mercantile enterprise, nationally assisted or otherwise, were vigorous enough to clear a deep channel for merchant vessels through the Taganrog roads, and into the mouth of the Don, the prosperity of this region would rapidly develop and become very abundant; for the Don is so deep, and wide, and slow, that, if once in, direct communication might easily be opened up with vast stretches of fertile country, and produce brought straight away without the expense, and risks, and delays of trans-shipment with which the commerce of the Sea of Azov is now heavily burdened.

Grandfather's Clock. in the Zanzibar dialect, from Central Africa, with a translation by the Rev. T. Wakefield, will interest some of our members—

SAA ya Babu kaenda vizuri,
Miaka, jamaa ! tissaini ;
Ndefu kuliko mzee mwenyewe,
Lakini mwenyewe mnene.
Siku ile azaliwa,
Ile saa yanunuliwa,
Yakamfurahisha dayima.
Illa, tu, bass ! haiendi tena,
Akifa mzee.

CHORUS.

Tissaini, miaka, wee !
Ti ! Ti ! Ti ! Ti !
Haichoki kulia, wee !
Ti ! Ti ! Ti ! Ti !
Illa, tu, bass ! haiendi tena,
Akifa mzee.

(Translation.)

Well went grandfather's clock,
(For) Ninety years, my friends ;
Longer than the old man himself,
But he (the man) himself is huge.
The day he was born
(On) that day was the clock bought,
And it rejoiced him continually.
But, all is over, it goes not again,
The old man died.

CHORUS.

Ninety years, look you !
Tick ! etc.
Never tiring to speak (tick or strike)
look you !
Tick, etc.
But, all is over ? the it goes not again,
The old man died.

NOTES OF TRAVEL FROM SHANGHAI TO ST. PETERSBURG.—(*See Map, page 56.*)

BY MR. J. M. MOLESWORTH, C.E.

[Addressed to the Members in the Memorial Hall, March 6th, 1889.]

HAVING already procured a companion, and received permission from the Russian Legation at Pekin to travel across Mongolia with the mail leaving the capital on the 22nd of September, and, having applied through the British Consul at Tientsin for the necessary Chinese and Russian passports, I sailed on the 12th September from Shanghai for Tientsin. We had a very rough passage till we got round the Shantung promontory and into Cheefoo at 5 a.m. on the 15th. At midnight, the same night, we sighted the light at Taku, the entrance to the Pehio river. In trying to cross the bar we got aground, and stuck till nine o'clock the next morning. In going up the river, at one of the numerous bends our steam steering-gear got wrong, and we got hard and fast on the bank and stuck there till two o'clock the next day, so did not reach Tientsin till 5 p.m. on the 17th September. As soon as I landed I found that the Russian mail left for Pekin the next afternoon at two o'clock, and that as the roads were very bad it would be necessary for me to get my baggage carts off some hours before that. I also found the Consul had forgotten all about my papers, and had not applied either for a Chinese or a Russian passport.

The next morning I started my baggage wagons off at four o'clock prompt. I procured some letters of credit and introduction from a Russian merchant to a correspondent of his at Kiachta, and, having laid in a stock of sycee,* said good-bye to my friends, and, accompanied by my Chinese servant, mounted our ponies and started to join the mail, at the Russian Consulate. The mail bags were on donkeys, and the escort (two Cossacks) on ponies like ourselves. We had only just started when a messenger arrived from the hotel to say our baggage carts had returned, as, owing to the flooded state of the roads, they were unable to proceed. The only thing to be done was to try and get by boat, so I sent for a boatman, and after haggling with him, promising him extra pay and hiring a double crew, I persuaded him to try his best to get me in time. I got my baggage on board, and at four in the afternoon started for Tung-chow. These boats are called by foreigners house-boats.

* Ingots of silver used instead of coin.

After a journey of sixty hours we reached Tung-chow at daybreak on the morning of the 21st, and after some bargaining procured carts to convey baggage and ourselves to Pekin. These Chinese carts are not the most comfortable vehicle in which to travel under the most advantageous circumstances—but add to this that we had to travel over a road paved with blocks of stone several feet long and from one to two feet wide, no two of which were on the same level, and as the road had had to bear the traffic of centuries from and to the capital, great holes were worn in them in places. The carts have no springs, and the drivers no conscience, so that down goes one wheel into a hole, up goes the other over a step, and then down with a crash. You have got your eye on the one to prevent your head getting bumped, when up rises the other side and hits you a crack on the off side, until your poor head and bones ache again. We had about ten miles of this, when we made a detour, and, after going across country for another ten miles, reached Pekin at two o'clock in the afternoon.

The country, which up to Tung-chow is more or less flat, then begins to undulate till north of Pekin you get range after range of hills.

I find I have no time to give a description of Pekin, but no doubt you will have all heard it described at a previous meeting of the society.* Suffice it to say that its streets are dirty, that it is very hot in summer and cold in winter, that it has some fine buildings in the shape of temples and palaces outside it. Foreigners are not supposed to trade in Pekin, so that the only foreigners permitted to reside in it are the members of the various legations, missionaries, and the staff of the Imperial Maritime Customs. I at once went to the British Legation, to see what I could do about getting passports, only to find, to my disappointment, that it would take at least three days to get a Chinese passport, and a Russian one could not be procured until the return of the English Chargé d'Affairs, Mr. Grosvenor, who had gone to Tientsin. I therefore went to the Russian Legation, and the Russian Chargé d'Affairs at once offered to visé a certificate that I was a British subject, and I decided to risk going without a Chinese passport. My friends very kindly offered to procure mules, &c., for my journey to Kalgan, as I had to leave with the mail early the next day. However, the next morning word was brought that none were to be had, so messengers had to be sent all over Pekin for them. In the afternoon some arrived, and after a good deal of wrangling I got away, about three o'clock, on the 22nd. The mail had been gone some hours, so I had to travel hard to catch it up again. I drove right through Pekin in a cart—a few

* See the Rev. G. Owen's address, page 1.

miles to the north this had to be exchanged for a mule litter, and my baggage carried on the pack mules, as the roads became worse and we had to cross the various mountain ranges. More haste worse speed! This kind of travelling is not so pleasant as you might think—the climax being reached when on going through a pond in a village in the middle of the night the hind mule stood still, the front one going on, dropping the chair and myself souse into the water. Considering it was a cold night, and I could not change, this did not add to my enjoyment. Between two and three in the morning we arrived at a village where the Russian mail had halted. After a meal on tinned beef, biscuit, and some tea (no milk or sugar), I rolled myself up in a rug on the cong,* and soon forgot my troubles. The Cossacks roused me at five, and without breakfast I had to turn out and push on ahead. The country now was very hilly, but cultivated and populous. Soon after leaving the village we passed through the inner Great Wall at the Nan-kau Pass. At noon we stopped at a village to rest and get something to eat. Here some dispute arose between the Cossacks and their mule drivers—the local Chinese, siding with their own countrymen, attacked the Cossacks most furiously. They defended themselves for some time, but at last took refuge in the room where I was. The Chinese soon demolished the doors and windows with stones, and things looked very serious until my boy, who had managed to escape from the inn, returned with the mandarin of the place, who proceeded to quieten things down. We got away about 4 p.m., and travelled till nearly midnight. Before we reached our haven for the night the mules ran my chair into a tree, upset it, and in falling the Chinese lantern fell underneath and the whole thing was in a blaze. I scrambled out and did the rest of the journey on a donkey. The place we stopped for the night was a large walled city, Suan-wha-foo. The night was very cold and the roads bad. The Cossacks had me up at 3-30 a.m., but gave me time to have something to eat, and started a little before five. Travelled over hill and plain, passed some walled cities, and through others till 10-30 p.m., when we halted for the night. The next day we reached Kalgan, the frontier town inside the Great Wall of China. Here, after some trouble, I discovered my fellow-traveller who had preceded me. He was staying at a mission station, and thither I also went. As we had to start the next day on our journey across Mongolia we had no time to lose, and at once set about procuring what we required, and making preparations necessary. We each bought a sheepskin coat and breeches, and a goatskin bag to sleep in at night, some brick tea for barter with the Mongols, &c., Kalgan is a busy place. The caravans carrying tea from

* A brick bench serving as a bed.

China to Siberia converge here and pass through the gate of the Great Wall. Camel-carts had been procured for us through our Russian and Siberian friends, and, having got our bedding and sheepskins into them, we wished our missionary friends goodbye, left M. with the baggage, whilst I walked on in order that I might pass the guard-house in the Great Wall without giving rise to any suspicion that I was going further, and so be asked for my passport. M. having one could get my baggage through as his own, without trouble. If the Chinese had found I had no passport I was liable to be sent back a prisoner to Peking. I strolled up to the gate, spoke a few words to the guards, then, as if to inspect the wall, I wandered on and on till I got round a corner, when I took to my heels and ran till I got to the house of a Russian, where I took refuge until M. arrived.

As the *existence* of the Great Wall has been almost called in question lately, and has been the subject of some controversy in the newspapers, it may interest you to hear something about it from one who has been through it several times, and at points far distant from this pass at Kalgan, which is well known to foreigners. Speaking roughly, I should say it averages nearly 30ft. high to the top of the battlements, and is about 16ft. or 18ft. wide between the battlements, but is some few feet wider at the foundations. In some places the foundations are of stone. The wall itself is faced with very large bluish bricks, the space between being filled with earth. This wall is carried over the tops of the highest mountains and down into the deepest valleys, spans the rivers, and has a gate at each pass; and here out-works are constructed and forts built on the hills to command the pass, and towers are built at regular intervals along the wall. I was shown a chain in one place by which they used to make gong signals from tower to tower. As soon as M. arrived we settled with our Russian friends. I sent my servant back to Tientsin with letters for friends in China and at home, and with our baggage in two native carts, and two covered ones for ourselves, we turned our faces north, and started on the 26th September across Mongolia. Our baggage carts had each eight mules in and covered carts three, and we found we had not one too many, as our road lay up a ravine and along the bed of a river. We toiled on till about nine o'clock, when we halted for the night—and having now no servant we had to cook our own food—after which, rolled in our sheepskins, we slept in our carts, preferring that to sleeping in the filthy inn.

The next day we had a series of adventures; but I will not detain you with them, except one, where the cart carrying the Russian mail (and on which the three Cossacks who acted as escort for the mail were lying), in some way or other toppled over the side of the hill, and the ground being stony they received,

in addition to the shaking, serious wounds on their heads and faces. M. and I dressed their wounds, and with the assistance of the drivers and mules hauled the carts up on the road again, lashed the wounded men on the top, and proceeded on our journey. Between 10 and 11 p.m. the same night we reached a Mongol encampment, where we halted. Here we commenced our camel journey, so the next morning our mules and carts were sent back with the exception of the two camel-carts for M. and myself; and after the usual delays in loading and unloading the camels, squabbles between the Cossacks and Mongols, with intervals for refreshment, we at length made a start about two o'clock in the afternoon of the 28th September. Our caravan consisted of six camels for the mail, two riding camels for ourselves, two cart camels, and six baggage camels, three Cossacks and one Mongol with the mail, and three Mongols with our camels. A Mongol led the way with one of the camel carts, then followed all the camels in a string, the rear being brought up by the other camel cart and a Chinese pony we brought with us for hunting any game we came across. Each camel has a Y shaped piece of wood passed through the bone of the nose, with a notch cut in the straight piece, to which a thin piece of rope is attached. This rope is just hitched through some portion of the harness of the preceding camel, or to the back of the cart, in such a way that if the camel stops suddenly to pluck at a blade of grass or a little bit of bush, which they frequently do, the rope comes away without damaging the nose of the camel. The weather was beautiful, though the nights were very cold. We had one rather severe thunderstorm soon after starting, but it was soon over. The Cossacks had a tent to sleep and cook in; we had also a small tent to cook in, but we preferred to sleep off the ground on our carts.

It is impossible for me in the time at my disposal to give you anything but a rough outline of the journey. I will give you, therefore, a general idea of what we did, one day's routine being much the same as another. We roused up at daylight, lighted a fire of argol or dried camel's dung, got breakfast ready, usually consisting of a plate of porridge, biscuit, cup of tea with fresh milk, either goat or mare's (when we could get it), or else tinned milk. After breakfast wash up (if we had any water to spare), pack our cooking utensils, plates, &c., in boxes made on purpose, take down our tent, load the camels, stow away our sleeping wraps, and start. We would then travel on till sometime in the afternoon, say 2 p.m., but depending on the water supply. If we came to water in reasonable time, so much the better; if not, we had to fall back on our own barrel, which we carried with us, and always kept replenished at the first water we came to. This was the time for our big feed, which had to last us till breakfast next morning. In the southern portions we could

barter for a sheep or goat with the Mongols for brick tea, but when we got into the desert proper we had to rely entirely on tinned meat and biscuits. We had some potatoes with us, but they took too long to cook. As soon as dinner was over we washed up, packed, loaded the camels, and started again, and travelled usually till about 2 a.m., sometimes later, seldom earlier, being again guided by water.

Camel travelling is very slow work—on an average, I should say, under three miles an hour. It is not that they actually move so slowly, but the constant stoppages to rearrange the loads or harness, or a camel gets loose and wanders off the road, and has to be brought back.

My companion and myself used to go excursions with our guns, taking turns on the pony, and look for game, and sometimes got good sport, and replenished not only our own larder but the Cossacks and Mongols' too. On the undulating downs and low hills of Southern Mongolia there is plenty of grass and water, herds of goats, sheep, camels, and horses feed on the plains. Here we found geese and duck, snipe, and other water-fowl. In the less frequented portions we saw herds of antelopes, turkeys, and smaller animals, and at night we sometimes heard the howling of wolves and other wild animals, but never saw any until further north. The carrion-crow and vulture were also to be seen when a camel, ox, or sometimes even a human being, sank to die on the plain. Though this did not happen in our case, we saw plenty of it in the desert.

The southern portion of Mongolia is, as I have already stated, undulating and hilly, with plenty of herbage for the Mongol herds. The Mongols live in "youarts," or circular flat-topped tents of felt, a circular hole cut in the roof to let out the smoke, which, however, they cover up at night with a felt mat, whilst another mat does service as door. The interior of these youarts are black with the smoke from the argol fire, which is most painful to the eyes until you get used to it. They squat round the fire on mats, helping themselves with their little wooden bowls out of the iron pan on the fire. They are very dirty, seldom if ever washing (which in some parts is impossible). Many are lamas or priests wearing the gaudy coloured clothes of their order, but covered with grease, filth, and smoke. They are a very quiet, inoffensive people, hospitable in their own way, and living just as they have done for centuries. They used to be highly delighted with an empty glass bottle, sardine, milk, or meat tin. Our great drawback was that our only means of communication with them was by speaking Chinese to the Cossacks, who translated it into Mongol. A few words, however, we quickly picked up, such as "Sine-bino" ("Is it well?"), their salutation, and the answer, "Sine-bina" ("It is well"). Their cooking is very primitive. They asked us one day to join them.

Over their argol fire was a circular cast-iron bowl, say 1ft. 6in. diameter and 6in. deep. Into this they first put some water—clean or not, no matter to them. I found they have no objection to a flavour of argol. Into this they put a handful or two of small yellow millet seed, let this boil a little, and then added a piece of brick tea; then they threw in lumps of mutton fat and some bones we had given them. We did not require a second helping. They had little wooden bowls, and a knife (but no fork) carried in their girdles.

For about four days we were travelling over this kind of prairie, then we came to huge sandy plains, more or less barren, broken occasionally by low rocky hills. The plains, which sometimes took us a couple of days or more to cross, would terminate quite abruptly, and we would descend into another. In one place the plain would be strewn with quartz pebbles, in another blocks of granite, scoriæ and lava. We picked up many pieces of bloodstone. In one district we passed for miles the bleached bones of oxen, camels, and in some cases human beings. I presume they must have died of fatigue and thirst. We met several large ox-cart and camel caravans coming south, mostly unladen, except a few hides. They would return with tea.

If you examine the map of Mongolia (my travelling one is by Stanford, and a very good one) you will see all along the route little dots or circles with names to them. These are misleading, as you would infer they were towns or villages, whereas really they are only what ought to be wells or holes dug for water, and some of the names imply this, as "*Sine ussu*" means good water, though not good in our sense, as it is often brackish, and as the oxen and camels tread the ground all round, in their eagerness to get to the water, its condition is easier understood than described.

The only village of any kind we came to or saw between Kalgan and Oorga was a lama settlement that we came upon on the 11th October, or sixteen days from Kalgan. The houses were of stone, plastered over. There were two temples and a monument to Buddha, or some Mongol deity, in the village, which was situated in the midst of the most barren and weird-looking rocks. After passing this place, called T-tchai, the grass became thicker and longer than before, and though we passed the bones of oxen and camels, we also saw droves of horses and passed several "*youarts*." Then gradually the hills became higher, the herbage thicker, and we crossed several streams; the roads, however, in places were so bad and steep that we had to procure oxen and men to assist our camels over the passes. Here we saw some yak.

On the 15th of October, or twenty days from Kalgan, we crossed the river Tola (a tributary of the Angara), several times, and about noon, in a heavy snowstorm, we entered the Chinese

quarter of Oorga, passed through it to the Mongolian town of Kuren or Huren. This place, the seat of the Bokh or chief lama, is said to be 4,000ft. above the sea, and 350 miles south-east of Irkutsk. I should put it at quite 500 miles from Irkutsk. The population is made up of some Russians or Siberians, a Chinese colony, and several thousand Mongols. The Bokh lama temple contains an enormous image of Buddha, in sheet brass, clothed in handsome silken robes. The Mongol town is unique. Each house, built of wood, stands in a large compound, surrounded by a palisade of trees cut in poles, sharpened at the top, about 8ft. high, and say 6in. diameter, so that for its population it covers a large area. Here, for the first time, I saw the "praying machines," some small enough to be carried about, not more than three or four inches diameter, others like a young "merry-go-round" at a fair, or a "ship's capstan," in a building with grown-up Mongols gravely pushing them round and grinding out their prayers. We were told that one son in each Mongol family becomes a lama, and they have here a kind of college and monastery for them. We here procured fresh camels, our others being done up, and sold our pony. Oorga seemed a busy place. All the caravans from China to Siberia converge here. Much of the tea is taken from here by Siberians in carts, they coming thus far from Kiachta for it, Mongols, with either ox-carts or camels, doing the remaining distance to near Kalgan, where the Chinese take it up. We did not get away without trouble, the Mongols providing us with two camels and a man less than they had agreed to, but as we could only speak through a Russian, who spoke very little, and that little bad, English, we gave it up as a bad job. We started off again the next day, 16th October, after being about twenty-four hours in Oorga. The weather had become very cold, and it snowed, more or less, the whole way to Kiachta on the Siberian frontier.

The country between Oorga and Kiachta is mountainous, sometimes rugged, often well-wooded. In crossing one range we came upon a strange sight. It was moonlight, so that we could see well. The trees in every direction were scattered about, some torn up by the roots, some snapped off short, many having the appearance of having been struck by lightning. I mention this, as I have often seen the effects of storms in various parts of the world, but I never have seen such complete devastation over such an area. The scenery was often very fine, and the more pleasing to us after the barren country through which we had been travelling. Here we saw magpies again for the first time since just north of Peking. We also saw wolves here, and from what we heard at Oorga they must be very numerous and bold. We crossed several small rivers, some of which gave us some little trouble to get our carts over. The Cossack escort

had been very troublesome for some time, getting drunk, quarreling and fighting with the Mongols, and causing us no end of trouble and annoyance, sometimes even threatening us. We were, however, quite prepared for them in case, in a drunken frenzy, they should attack us, and I think they knew they would come off second best in an encounter; so to spite us they stole quietly away one night with the mail, deserted us, and we only once saw them in the distance afterwards—we were at the top of a pass and they were far away in the plain. But for the awkwardness of being left with fresh men, who did not understand us nor we them, and who perhaps did not know where we wanted to go, we did not mind the Cossacks going, and managed very well with our two Mongols, and they seemed quite happy with us, and brought their friends and relations to call and sit over our fire, or watch us cook, and get a present of an empty sardine tin or glass bottle.

On the morning of the 21st October, the twenty-seventh day from leaving Kalgan, we descended from the mountains in a very heavy snowstorm into a plain covered with dense forests, through which our road had been cut, and through which we travelled for a considerable distance. On emerging we saw to the north the dome and cross of a large church glittering in the sun, which was now shining. It was still a long way off, but we knew it must be Kiachta, the Siberian frontier town, and right glad we were to see a friendly roof. As we did not exactly know where we could put up, I mounted a Mongol pony, and with one of our Mongols on another, left my fellow-traveller and the remaining Mongol to look after the caravan, and galloped as hard as we could towards the dome. We had, however, some seven miles to ride when we came to the Chinese frontier treaty settlement of Mai-ma-tchin, a little place of some 400 Chinese. Through this we passed, and immediately found ourselves in the Siberian town of Kiachta. I had a letter of introduction and credit to a merchant, a Mr. Gribooshin; but how to find him, the Mongol was as much at sea here as I was, and I could not speak a word of Russ. Everyone I met stared at me, but made no sign of doing anything else, till at last I saw a gentleman with a double-barrelled gun over his shoulder (this turned out to be an officer in Colonel Prejevalsky's expedition, which was about starting across Mongolia towards Thibet). I dismounted, and showed him the letter. He read the address, but evidently did not know the house, so called a man, who told him where the house was, while he turned back, and after showing me the house left me. Giving my pony to the Mongol to hold, I knocked at the door. It was a large log-house, standing in its own compound. By this time a crowd had collected, consisting chiefly of nursemaids and children, and the only result of my knocking was the appearance of a lot of servant-maids,

who, when I showed them the letter, only giggled and shook their heads. I made out, however, that the person I wanted was not there. So I left, not finding anyone who could understand me, until I spotted a Chinaman. I informed him I had just come from Pekin, and he was quite pleased to act as interpreter, so we returned only to find that M. Gribooshin and family were away. I, however, had a small package I had been asked to deliver by a Russian gentleman in Tientsin, to a friend of his in Kiachta, so I thought I would try the effect of that. Having told the Chinaman the name, we proceeded to the house, followed by my Mongol. The Chinaman seemed to know his way about, for he opened the door and ushered me into what was evidently a drawing-room, and which, to my horror, I found full of ladies, gentlemen, and children, evidently having an evening party, probably a birthday. It was, however, too late to beat a retreat, as the only available exit was blocked by the Mongol, who, to make things worse, had also come in. I had, therefore, to make the best of it, so I produced the package and handed it to (as I presumed) the lady of the house. I had, as you will understand, never been in bed for thirty days, not since I left Pekin; my hair and beard were long and unkempt. I was much weather-beaten, my clothes were travel-stained and anything but presentable, and here I was sitting on a sofa with a Chinaman on one side and a dirty lama camel driver on the other. This was probably the first time the latter had ever been in a room or under a roof in his life. No one could speak English, French, or German, so the conversation had to be carried on through the Chinaman until the arrival of a lady who spoke French. I then found there was no hotel or guest house at Kiachta, but this lady thought they could get us a room in a private house where the lady and her daughter both spoke French. However, they required great persuasion to take us in, but at last consented. I then sent the Mongol to meet the caravan and to bring it to the house. On its arrival we unloaded, got the luggage into our quarters, a tiny room with barely space to move in. We were only too glad to have a roof over our heads. Having had something to eat, we rolled ourselves in our rugs on the floor (no beds), and were soon asleep.

By treaty with China only a certain number of people are allowed to live or even, I am told, sleep in Kiachta.

The washing arrangements of the Siberians seem to be of the most meagre description in their houses. They go apparently to the public baths once a week or fortnight, perhaps not so often, and leave the rest to Providence. At any rate, in the morning we foraged for some sort of vessel to wash in, and at last discovered a big tin basin, but to our mortification it was only the receptacle for the slops. Above it stood, or rather was fixed to the wall, a brass vessel like an urn, without a spout or tap, from

the bottom a knob projected, and on pushing this up water trickled down. You caught a little in the hollow of your hands, and you washed, or tried to do. This was the public and only wash place for the establishment, and was hardly sufficient, especially as the domestics were constantly going backwards and forwards through the hall or passage.

Kiachta is not now the flourishing place it once was. Formerly it had the entire monopoly of trade with China, but since Chinese ports have been opened it has lost much of its trade. Its cathedral is evidence of its former prosperity—not so much the exterior (as one Siberian church, as a rule, is much like another), but the costly interior decorations and fittings, paintings from Europe, silver altars, rood screen of gold, silver and precious stones. We were told the screen alone cost in Russian money equal to £10,000. The tower is badly cracked by an earthquake. We saw also large warehouses for storing tea. The population of Kiachta is about 500, consisting of merchants and their families. But a little over a mile away north is the town of Troitz-kos-avsk, built to avoid treaty restrictions placed upon Kiachta, with a population of about 5,000. It has a government school and other public buildings, shops, and a former customs-house. Now the customs barrier is between Baikal and Irkutsk. We were kindly received and treated by the gentleman to whom we had letters, and when he returned the next day he drove us over to Troitz and introduced us to a professor at the school who spoke English perfectly, and who was exceedingly useful to us and gave us valuable information. Mr. Gribooshin insisted on our taking one of his own servants as valet as far as Irkutsk, as we could not speak a word of the language. He would, so said our friend, prevent our getting into trouble, and would see, at any rate, that we reached Irkutsk (where, probably, we should get an interpreter) in safety. Having shown our papers to the Frontier Commissioner, and procured from the police, through our friends, the necessary “*podorojna*,” or permit to travel, we arranged to start for Irkutsk on the afternoon of October 24th. There were no horses, however, to be had till eleven o’clock at night, when our two *tarantasses* arrived. We at once proceeded to get our baggage packed into them, and said good-bye to our friends, who had been waiting since 4 p.m. to see us off.

As we are now posting all the way to Europe, with the exception of 300 miles in the Ural Mountains, it will be as well to give you some idea of what travelling in Siberia is. The first thing to do is to procure the “*podorojna*” or permit. These are of three kinds—first, the “*couriers*,” only used for important or state business; secondly, the “*crown podorojna*,” usually given to officers or officials, sometimes as a favour to travellers. Both these confer certain privileges on the holder

of them in the way of getting horses over the heads of other travellers, &c. The third is the "ordinary podorojna," and this was the one we had procured, in this instance, as far as Irkutsk, paying a small sum for it. The podorojna states the number of persons travelling, vehicles and horses required, and has to be produced to each postmaster before you can procure fresh horses, conveyances, or men. Next the vehicle. You can either travel "*periclodnoi*," that is, hire a tarantass from post-house to post-house, just as you do your horses and drivers, or you can *buy* an "*equipage*," and only then have to hire horses and drivers, and you have not to change your luggage at every post-house. This is the easier and more genteel way of travelling. But we could not do this. The winter was coming on fast. It was already bitterly cold, and the first fall of snow might compel us to leave our "*equipage*" at some out-of-the-way place where we should be able to get nothing for it, and we should have to travel on in sledges. Our friends had offered us two equipages for sale, which we declined with thanks. I may mention here that owing to the position of and the prevailing winds at Kiachta snow does not lie there, and they use wheeled vehicles all the year round.

Now to describe the tarantass, in which, in winter, I hope it will not be the lot of any of you to travel. In shape like the half-shell of a walnut, no seat, no springs, the body mounted on poles (to which the wooden axles and wheels are connected), into this you have to put your baggage, of whatever shape, size, or kind, and sit on the top of it, so far as a small hood at the back will permit you to sit upright. Think of travelling in this, hour after hour, in the bitter cold, night and day, always on, stopping every two or three hours to get fresh carriages and horses, and do fresh packing and pay for your horses for the next stage. You may have time to eat a bit of black bread and get a tumbler of hot tea, or you may have time to thaw a piece of a leg of mutton you have got with you in the tarantass. Packing a tarantass is an art, only learnt by practice, and has to be gone through at every post-house you come to—morning, noon, or night. The distances between these vary from about ten to over thirty miles.

We had to have two tarantasses. Nicolai, our servant, rode in one, with some of our baggage, whilst M. and I travelled in the other on the top of the rest. We sometimes had during the first portion of our journey, if we arrived on the banks of a river during the night, to wait until daylight before we could cross, as they were not entirely frozen or were unsafe. There are no beds at the post-houses, so you simply lie down on the floor on your sheepskins, and get what sleep you can until you are allowed to proceed. The only thing the postmasters are bound to provide you with is hot water in the samover or urn.

Travelling rapidly over rough roads, at high speed, necessarily throws a great strain on the tarantass, and we frequently had upsets or breakdowns, broken axles, broken wheels, or the wheels coming off. Our first upset occurred on the second stage from Kiachta, and our driver had to go back and bring a fresh vehicle. We were ferried across the river Selenga, which flows into Lake Baikal, in the midst of great blocks of ice, that came floating down the river, making the passage both difficult and dangerous.

The country near Kiachta was rather flat and sandy, but we soon got among the mountains and had a taste of Siberian driving. Usually we had three horses abreast, sometimes more, never less. The horses are smaller than English horses—very hardy, not much to look at, but good to go. They are always driven abreast. The centre horse only is in shafts, the others are trace horses, and taught to turn their heads outwards, which gives them the appearance of trying to break away. The shafts are fastened to the arch or bow, always seen in pictures of Russian sledges or carriages, and to the top of this bow are hung the bells. The horse collar is in turn lashed to the shafts at the bow by thongs. There are no brakes used at all, and as the hills are very steep and often long, and the whole weight of the vehicle comes on the one horse's shoulder, it will be readily understood that there is not much control, as far as stopping the vehicle.

We began to go down slowly enough, but a walk quickly gave way to a trot, and a trot to a gallop, so that by the time we got to the bottom it was a matter of chance if the horses could keep in front of the carriage. It makes your hair stand on end at first, but you soon get used to it. Our troubles are not yet over as there is the wooden bridge that spans the valley to cross yet, and this speed has to be kept up to help us up the hill on the opposite side. The rains have washed the road material away, so that the planking of the bridge forms a step, against which first our front and then our hind wheels come with a crash, and up we go in the air. Once I cut my head badly by being jumped up at one of these bridges, and my head coming against the iron frame of the hood, after which I was more careful how I sat.

The scenery between this and Lake Baikal was very fine—the mountains covered with snow and the hills thickly wooded. In summer these valleys must be lovely when the trees are in full leaf and the flowers out. In some parts we travelled for miles through burned forest—in one the fire was still raging.

We reached the shores of Lake Baikal on the afternoon of the 27th October, three days from Kiachta. We found we must wait here for the steamer to return from the other side, the roads round the south of the lake being blocked with snow. The only

place to put up at was a log-house on the shore—not at all an inviting place—and our man Nicolai made us understand by pantomimic signs that we must be careful to keep our revolvers handy—why, we never knew. The wind was very high, and the waves breaking over the landing-stage and freezing on it. We could speak to no one, and our only means of communication was by signs. We had read that the lake was celebrated for a fish called the “omul,” which we wished to try, so we intimated we should like some to eat. Some time after they brought us one, just caught, cut open, put on a dish raw and covered with oil. It is needless to say we did not ask for it again, but they seemed to think it a delicacy, and brought us another the next day.

The steamer arrived on the 29th. We got our baggage on board, and started across at 4 p.m., reaching Listvenitz, on the other side, at 10-15 p.m., or 6½ hours. The steamer was a paddle, and bore a strong family likeness to Noah’s Ark. The engineer and captain were extremely civil. The former, a Prussian, finding we were English, brought another engineer, a Scotchman, to call upon us at the inn on arriving at Listvenitz. He had lived so long in Siberia, however, that he had practically forgotten what English he ever knew, and the only way we got at him and brought him back, so to speak, to his native heath, was by producing a bottle of real Scotch whisky. This little attention he highly appreciated.

At 5-30 the next morning we started again in tarantass. The weather was beautifully fine, but very cold. Our road skirted the lake for some distance, till we reached the spot where the Angara runs out of Lake Baikal, and here we had a magnificent sight. The mountains to the east, north, and south were covered with snow. The Angara rushes out of the lake with such rapidity that at the rapids it is said never to freeze, though the lake will be covered with ice 6ft. thick. Sometimes the river runs between steep cliffs; at others the forest comes down to the water’s edge, and the branches and twigs of the trees get covered with ice from the vapour rising from the river, and sparkle in the sunlight, making a lovely picture.

Our next halt was at the customs barrier, of which we stood in great dread, as we had heard stories of horrible doings there—dubbing being seized for dynamite, and soap and other articles being looked upon almost as contraband, and rated accordingly. However, being very dense, we could not understand anything that was said to us, except when the chief, a Prussian, suggested that as it was rather cold we might go into his room and warm ourselves; but to all his questions as to who we were, where we were going, what hotel in Irkutsk we were to stop at, where we came from, &c., we shook our heads and said nothing. After examining our papers, and turning every box, bag, and parcel

inside out, and putting seals on our provision cases, he let us go. The barrier was raised, and off we drove. Reaching Irkutsk at 2 p.m., we put up at the Hotel de Siberie. No one in the hotel could speak anything but Russ, which was awkward. However, they gave us a room, and soon after a Pole, in Russian uniform, arrived. He informed us he was ordered to report himself at St. Petersburg, and that as he spoke English, French, German, and Russian he would be glad to accompany us as interpreter, which offer we accepted. We presented our letters to Mons. Pied-it-ni-sats-ni-koff, and after dinner went to the theatre.

Irkutsk is the capital of Eastern Siberia, and the seat of the Governor-General. It was partially destroyed by fire in 1879, and had not yet fully recovered, large open spaces still remaining. Formerly all the houses were of wood—now, I believe, the Government insist on brick being used. There are some very fine churches, a gold-smelting usine belonging to the Government, and many large buildings, barracks, convict stations, museum, clubs, &c. We visited the gold usine and saw the whole process, from receiving the bags of gold dust from the natives in bags, smelting, &c., to the storing the bar gold in the safe, whence it is taken every winter, under strong escort, to St. Petersburg. The cold was every day increasing, and we found our wraps would not be sufficient for the journey before us. We therefore bought felt boots, felt socks, sheepskin coats, hoods, fur-lined gloves, and had a large rug made out of our Mongolian sheepskins—these were for travelling. For wearing in towns we bought Astrakan caps and a shouba, or long cloak, lined in my case with marten skins and with a large fur collar. We made an excursion outside Irkutsk, crossing the Angara by means of a self-acting swinging ferry, the only one I saw of the kind. Two wooden hulls are fixed side by side, a few feet apart, and a deck of planking carried over both so as to form one large platform. A rudder is fixed to each hull and connected by a rack, this rack being actuated by a pinion worked in the usual manner from the steering wheel. Near the front and stern of the deck are placed two frames, each composed of two stout uprights and a cross-bar on the top the full width of the deck, and perhaps eight feet high. To the cross-bar at the stern is fixed a rope. This rope passes over the fore cross-bar and is then carried a considerable distance up-stream, where it is anchored. At short intervals from the anchor small boats are lashed to this rope. To cross it is only necessary to put the helm hard over in the direction in which you wish to go, and the current then swings you across; to return, you reverse your helm. This ferry carries a large number of passengers, cargo, cattle, horses, and carriages. The river has a swift current.

We left Irkutsk at 10 a.m. on the 5th November. There not being as yet sufficient snow for sledges, we kept to our tarantass travelling, and pushed on as hard as we could along the banks of the Angara, then across a plain, and through forests, changing at every post-house. In order to cross some of the rivers where the ice was not safe, we had to leave the post road and our tarantass (as the drivers are not allowed to go off the post-road) hire country carts, go along the banks till we found a ferry where the river was open, get ourselves and baggage ferried across, and then hire fresh carts to take us to the nearest post-station. The weather was intensely cold, and we found our wraps not at all too warm. On one stage one of our "yemstechicks" was drunk, and in going down hill lost control of the horses, which bolted, upsetting the tarantass and dotting the road with our various portmanteaus, bags, packages, &c. We had to send the other tarantass back to pick up the bits. At one village we were kept waiting several hours during the night by the postmaster, the river not being safe to cross in the dark. Whilst we were waiting some Russian merchants arrived, and bribed the postmaster to let them have our horses (the only ones on the station), which meant a delay of many hours to us. Our interpreter tried to stop them, but did not succeed. The postmaster then came into our room and became very insulting, my companion at last knocking him down and giving him a bloody nose, on which he raised such a commotion that the whole place was up, and we had an unpleasant time until the mayor arrived to take us prisoners, and it was only after a long explanation and our threatening to telegraph to the Governor-General at Irkutsk that he was induced to let us go. However, to make amends, he procured private horses and tarantass, and escorted us safely out of the place. We began to suffer now from the intense cold, bad food, hard travelling, and want of sleep. Between the post-houses our breath was frozen inside, all our wraps and our eyebrows and eyelashes frosted. At this point we met a large convoy of prisoners going east, some walking and some riding in carts. In some of the carts there were women and children. None of the prisoners appeared to be ironed, although we looked specially to see if we could detect the heavy chains we had so often heard and read about.

The soldiers, forming the escort, seemed to anticipate no attempt at escape on the part of the prisoners, most of their arms lying in the carts, some of the soldiers also riding and chatting and smoking with them. It must be a terribly weary tramp for these poor wretches, day after day, week after week—though many of the stories of cruelties one reads about in novels and accounts of so-called escaped exiles are, I believe, gross exaggerations, especially those about the quicksilver mines. They have quite a wretched enough existence as it is.

On the 9th November, we were obliged to halt for the night, my companion being knocked up and our interpreter complaining. However, the night's rest put them on their legs again, and we were off again at 6 a.m. Soon after starting, the front wheel of our tarantass came off. We were pitched out—driver, baggage, and all. Beyond a good shaking and a few bruises we were none the worse, but it caused us some delay.

After more breakdowns we reached the town of Kansk at 1 a.m. on the 12th November. Here we stopped for the night to procure fresh "podorojnas." Kansk, the departmental town, has a large population, a fine church, and good wide streets. The country round is undulating and but few trees. Further on, however, we again travelled through forest. One night we had a lovely sunset. Being on an elevation we could see for miles nothing but forest as far as the eye could reach. As the sun went down in a perfectly clear sky it lit up the frost-covered trees, and gave them the appearance of being on fire.

On the 13th November, just before reaching Krasnoiarsk, we crossed the great river Yenesei, which is said to be 3,500 miles long, rising in the Altai Mountains in Mongolia and flowing into the Arctic Ocean. At Krasnoiarsk, 1,700 miles from the sea, it is over 1,000 yards wide. It is very rapid. In spring the current is said to reach seventeen miles an hour, yet it was now sufficiently frozen for us to cross in sledges.

Krasnoiarsk, chief town of the province, possesses a cathedral and several churches, some large public and several large private buildings, population 13,000, and seems a pleasant place. The country round is picturesque and well-wooded. Had dinner brought in from the hotel to post-house, and enjoyed a square meal, and as we had to wait for horses we could take our time, though it took a hungry man to enjoy even this dinner.

Left at 1 a.m. Bitterly cold, but beautifully fine. Our baggage was getting all knocked to pieces by this rough travelling.

The next night, at Atchinsk, we tried to get something in the way of dinner. A bill of fare was brought, with a menu of over thirty dishes. This looked well, but beginning at No. 1 we went through the list, and they were unable to give us a single dish on the menu, so we had to content ourselves with tough beefsteak, bread, and bad beer.

Since Krasnoiarsk we have travelled entirely in sledges. The cold became more and more intense.

At one village we were informed by an officer travelling that the next village was *en fête* and the postmaster and assistants helplessly drunk. The postmaster from this station, therefore, accompanied us to see that we got through all right, and it was well for us he did, for the post-house was a miserable hovel, and the whole population seemed drunk, and we should other-

wise have got no attention. It was snowing heavily now, day and night, which in open sledges is not agreeable. We reached Merinsk at midnight on the 15th, but only stayed a couple of hours, and pushed on for Tomsk, where we arrived at 4-35 a.m. on the 17th, twelve days from Irkutsk.

Tomsk, the capital of the province, stands on the banks of the river Tom. The province has the second largest population in Siberia. The mountainous districts are rich in minerals, whilst the land round the villages is very fertile and produces good grain. The climate is said to be good. The first thing in the morning we paid a visit to the baths, of which we stood much in need, never having had our clothes off since we left Irkutsk. We then proceeded to leave our introductions and look about the place. Here, as in the other places, we attracted more attention than we cared for, and at the hotel had to dine in a private room to escape being stared at. We had an introduction, amongst others, to a Mr. G., whose wife was English, and who had a sister living with her. They were, however, almost unable to speak English, having been born in Russia, and I presume lived in Russia and Siberia all their lives. They were, however, delighted to meet any of their countrymen, and it made our stay very much pleasanter from the fact of being of our own country, however indifferently they spoke the language. Cold here intense. My companion narrowly escaped being frost-bitten, and we had all to be very careful.

Tomsk has some fine churches and other public buildings, many of brick. Its population is said to be about 30,000. The streets are wide, and in some places steep. We here bought a sledge of our own, so now have not to move our luggage at each post-house, only change horses and drivers. We left Tomsk at 1-25 p.m. on the 20th November. Our interpreter and Russian friends regaled us with bloodthirsty stories of the dangers of the road. We were never personally molested, though I have sometimes seen rather suspicious people loitering about in the forests. We were well armed, and never made any secret of it. We felt the cold most keenly, even through our furs and wraps and all our clothing. On the morning of the 21st we crossed the Obi. This river is joined thirty miles north of Tomsk by the Tom and then by the Irtysh. It has a course a little under 3,000 miles from its source to where it flows into the Gulf of Obi, and so into the Arctic Ocean. In going downhill we ran into a sledge coming up, and killed one of our horses, and further on the sledge was upset and damaged. The post-houses here are poorer than east of Tomsk, and we have entirely to live on the provisions we carry with us. Passed more convict gangs but saw none in irons. Country flat, and but thinly-wooded.

Between Tomsk and Omsk we travelled over what is known

as the Baraba steppe, a flat, almost barren, plain, dotted over with lakes and ponds, and in summer marshy ground. These, of course, were now frozen over, so that we frequently crossed them. The Baraba steppe is many thousand square miles in extent. On the 23rd of November, at night, while we were crossing the steppe, it had been snowing heavily. The roads were bad and the snow deep. We heard the howling of wolves, and our "yemstchicks" or drivers became greatly excited, calling to us in Russian, "Wolf! wolf!" and yelling and shrieking at their horses till they flew along. At length, however, they pulled up, and our interpreter shouted to us to get out and fire—that our drivers were afraid. If we did not, they would make a rush for the horses. So we rolled out and gave them a few shots—they were close upon us—drove them off—jumped in to our sledges and dashed off again as hard as our horses could go, only to have the same thing repeated. The wolves were too quick for us and were gaining. Our drivers pulled up, and we got out and gave them another volley, this time at close quarters. We could see them against the snow—great gaunt brutes they looked. We did not wait but flew off again, and reached our post-house without further incident. The distance from post-house to post-house was, as nearly as possible, 29 English miles, and we did the journey in about two hours and ten minutes, notwithstanding the deep snow. Had to get sledge repaired. Interpreter's finger frost-bitten.

We arrived in Omsk at 5 p.m. on the 24th of November, and at once ordered dinner, of which we stood in great need, and shortly after sat down to a sumptuous repast of fish, sucking pig, plover, and champagne. After dinner we went to the baths, the rooms of which simply swarmed with insects, beetles, cockroaches, &c., &c. When I came to put my clothes on I simply had to shake them out. I had had several years experience in the East, but had never seen such swarms before.

Omsk is the seat of the Governor-General of Eastern Siberia, and is a commercial centre, for besides being on the highway from China and Eastern Siberia, the Kirghiz from Central Asia visit the market, bringing their goods on camels. They much resemble the Mongols, but are perhaps the better looking of the two. Omsk has also several manufactories and a population of nearly 20,000. It has a large square, well laid out streets, and fine buildings. We called on the Governor, who in return sent us his aide-de-camp, to show us about and look after us. He also offered to be of any assistance he could on our journey. We visited the theatre and also attended a ball. The cold here was intense. I was told by an officer, that the previous night the thermometer registered -40° Reaumur.

Left Omsk early on the 28th, and reaching the town of Abatsk branched off the main road towards Tobolsk. Weather

warmer. Country undulating and thickly wooded, though timber of small growth. Villages poor, and inhabited chiefly by Tartars.

After crossing the river Irtysh our horses somehow slipped over the bank, without, however, taking the sledge with them.

Reached Tobolsk on 29th November; capital of government. It stands at the confluence of the Tobol and the Irtysh, 1,976 miles east of St. Petersburg. It has wide and regular streets. The lower town is subject to inundations. Here we received great attention from the police, who followed us about wherever we went, and finally came into our room at the hotel and asked for our papers. Our sledge was repaired here by a Polish exile. Left Tobolsk at 8 a.m. December 1, passed the large convict station, sledging along the banks of the river to Tiumen, which we reached early on the morning of the 2nd. Called on Messrs. Wardroper, who are engaged in building steamers, &c., for the river traffic. They were also much interested in the attempt of Captain Wiggins to open up a trade route, between Hull and Siberia *via* the North Cape, the Kara Sea, the Gulf of Obi, and the other large rivers flowing into the Arctic Ocean, one of them having been to the Gulf of Obi in connection with this matter, and we had a most interesting conversation on the subject. Saw and read the *Times*, the first newspaper we have seen since leaving Shanghai. Tiumen, on the river Toura, a tributary of the Irtysh, is an important commercial centre, having also ship-building yards and engineering works. We started again at 11 p.m., and met large numbers of sledges with machinery, &c., going east. We were disappointed with the Ural mountains.

We arrived at Ekaterineburg about 2 p.m. on the 4th December, and visited various shops, where precious stones, for which the town is celebrated, are sold, and also articles in agate, &c. Another day we drove out about ten miles to visit the gold Zarod, where we saw the ore crushed, ground, and the other processes for extracting the gold. The officials in this, as in other instances, were most civil and obliging. This being St. Catherine's Day, the patron saint of the town, the whole place was *en fête*, and we attended a grand ball in the evening at the club. The next day we visited the Imperial stone usine, where vases and other articles and ornaments, made from the different beautifully coloured porphyries, &c., found in the vicinity, are manufactured for the emperor's palaces.

Ekaterineburg has some fine churches and other buildings, and a population of about 35,000, and seems a well-to-do place. We left at noon by train through the Ural mountains for Perm. The railway station is a magnificent building, with handsome and spacious buffet and dining-room, &c.; and at all the large stations we found the refreshment department good. The carriages are very large and well-fitted. The distance from

Ekaterineburg to Perm is 312 miles, and there are 33 stations, at all of which we stopped. At Nijni-Tagilsk, a most important mining centre, we stopped for dinner. Gold, platina, iron, and copper, are found in the vicinity, and the works and mines of the Demidoffs are said to employ upwards of 30,000 hands. On reaching the summit of the Urals we passed from Asia into Europe, and arrived at Perm on the 9th at 8-30 a.m. Perm is a large departmental town, with fine buildings and large works, notably the government arsenal. Here we were delayed, as there was not sufficient snow. However, we got away the next day at 1-30 p.m., but had to have five horses in our sledge, four in another, and three in a third. Very cold again, and snowing.

About noon on the 13th December, we arrived at Kazan, the ancient Tartar capital. We found it a most interesting old place. It is said to have been founded in 1257. Many of the buildings are of brick. We had to leave our sledge (or what was left of it) behind us here. It had got so dilapidated with the rough travelling,—and had again to hire one at every post-house. To make some amends for this we managed to procure a “crown podorojna,” which would insure our getting horses quicker. We had to start early on in the afternoon, as on leaving Kazan we must cross the Volga, and the police allowed no travellers to cross the ice after sunset.

We pushed on as hard as we could for Nijni-Novgorod and passed through some towns of considerable size, where we found the post-houses larger and much more comfortable than the ones we had hitherto met with. We began to meet a large number of travellers now the snow-road having formed.

On the evening of the 14th December we entered a large town, the post-house of which, though a large one, was crowded with travellers. Here we were told we should have to stay the night, the river not being safe to cross after dark. While waiting for something to eat, a Russian gentleman sent a message that he would be glad if we would join him in his private room, and we were only too glad to escape from the crowded public room. Our host was Prince — a descendant of one of the old reigning families. He was extremely civil to us, and insisted on our dining with him, and as a preliminary, his servants brought into the room a tin basin, or bath, in which fish were swimming about. We were told to select the one we liked, and when we had done so it was speared and killed by the cook, and shortly after appeared on the table cooked. Our host informed us that he had already attempted to cross the river, but that his drivers, in taking a short cut, had taken his sledge over rotten ice, the consequence being that it broke, and he was very nearly drowned. However, his sledge and valuables had been recovered, and they were only now waiting for their clothes to dry and would then start again.

He had sent for the "police master," and every care would now be taken to insure the safety of his party whilst crossing. He kindly invited us to accompany him and travel with him to Nijni. We gladly accepted his offer, and left the town with quite a procession, nine sledges, twenty-nine horses, a police escort, and a number of men to assist us in going down the steep streets to the river, and help us to cross the ice. These streets were, I think, the steepest I ever saw. We were compelled to walk down, and our sledges were let down by men with ropes. We all got safely across and then started off again. Reached Nijni-Novgorod at 3-30 p.m. on the 15th December. Here our sledge journey finished. We sold off such of our wraps and stores we did not require, and after seeing the sights left again on the 16th by train for Moscow, where we arrived in 12½ hours, at 9-30 a.m. the next day. We stayed sight-seeing in Moscow till the 22nd, when we left in the mail at 9-30 for St. Petersburg, where we stayed until the evening of the 26th. Leaving then by train for London, and arriving there on Saturday evening the 29th, we came on to Manchester, and arrived there on Sunday morning the 30th December—108 days after leaving Shanghai, of which 85 days were spent in actual travelling.

TABLE OF APPROXIMATE DISTANCES.

Names of Places.	Mode of Travelling.	Miles.
Shanghai—Tientsin	Steamer	800
Tientsin—Pekin	Boat and cart	80
Pekin—Kalgan	Mule litter	130
Kalgan—Kiachta	Carts and camels ..	900
Kiachta—Irkutsk	Tarantass	312
Irkutsk—Krasnoïarsk	Tarantass	671
Krasnoïarsk—Tomsk	Sledge	369
Tomsk—Omsk	Sledge	585
Omsk—Tobolsk	Sledge	417
Tobolsk—Tiumen ..	Sledge	172
Tiumen—Ekaterineburg	Sledge ..	204
Ekaterineburg—Perm	Rail	312
Perm—Nijni Novgorod	Sledge	669
Nijni Novgorod—St. Petersburg	Rail	675
St. Petersburg to Manchester	Rail	1,873
Total.....		8,169

SUMMARY.

Cart, camel, sledge, and carts.....	4,509
Steamer.....	800
Rail	2,860
Total.....	8,169

CORRESPONDENCE.

LUKOMA : AN ISLAND IN LAKE NYASSA.

A communication from the Venerable Archdeacon Maples, read to the Members in the Library, March 20th, 1889, by Mr. G. H. WARREN.*

MORE than a quarter of a century has passed away since Englishmen for the first time gazed on the waters of Lake Nyassa. So long ago, indeed, as the year 1854, the pioneer missionary, John Rebman, collected and sent to England some interesting information as to the existence and situation of the lake, as well as regarding some of the races dwelling on its shores. It was, however, reserved for Drs. Livingstone and Kirk to share the honour of being the first Europeans not only to reach Nyassa, but also to navigate its water. They, indeed, cannot be said to have discovered the whole of the lake, for, sailing northwards, they thought they saw the mountains closing in at the north end, at a point about 11 degrees south of the equator. According to their reckoning, therefore, it appeared to be about 220 miles long. Subsequently, a circumnavigation of its waters was made by Commander Young, who found it to extend some 130 miles beyond the point believed to be its extreme limit by its first discoverers. The twenty-seven years that have elapsed since Dr. Livingstone's first journey to the lake have been marked by many important discoveries in the lacustrine regions of Equatorial Africa; and no small progress has been made towards opening up these remote districts to Christianity and civilisation.

I do not, however, propose in the present paper to dwell very particularly on the work that is being done on the shores of the great lakes Victoria Nyanza, Tanganyika, or Nyassa, by any of the various missionary agencies that are busy there. Even the work of the mission of which I am an unworthy labourer will be very briefly and incidentally noticed. In this short paper I propose to try and give a clear account of the natural features of the island in Lake Nyassa, where we, of the Universities' Mission to Central Africa, have recently formed a station and begun the work of evangelisation.

At the outset I may mention that Lake Nyassa is the southernmost of all the great Equatorial lakes of Africa; that it is about 350 miles in length, and that it has an average breadth of 40 miles, the middle part being broader than either of the ends. It lies nearly due north and south, and is for the most part very deep, shelving often very suddenly from the shore. Liable to heavy storms, and swept often by boisterous winds, high seas are of common occurrence, and waves are raised on its surface which would not discredit the briny Atlantic itself. The waters of Nyassa, however, are innocent of brine, yet clear and blue as the Mediterranean. It has a coast-line which, though very rocky in places, is but little indented by deep bays and inlets. The only islands of any size which are both inhabited and cultivated are Lukoma, which I am about to describe, and its neighbour Chisumulu. A few rocky islets close to the shores of the lake, towards the north end, are the homes of a few refugees who dare not live on the mainland hard by for fear of the predatory

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tribe, the Gwangwara; but these poor fugitives build their houses on rocks only a few square yards in area, where there is neither space nor herbage even for their goats, and where there is not soil sufficient to allow of any cultivation. Other tree-clad rocky islets there are at the southern end of the lake, in some cases rising to a considerable height out of its waters, the homes of otters, crocodiles, hyraxes, and smaller animals; but on these no human being has fixed his dwelling-place.

With these reservations I shall be understood if I say that, practically, the only islands on Lake Nyassa are Lukoma and Chisumulu. These are situated abreast of one another and some four miles apart, Lukoma being about 5 miles from the eastern shores of the lake, and Chisumulu between 10 and 11. Of the two islands, Lukoma is much the larger, being perhaps three times the size of Chisumulu, with a population proportionately greater. In shape our island is rectangular, lying NE. and SW. It averages $4\frac{1}{2}$ miles long, by about $2\frac{1}{2}$ broad, and, roughly speaking, may be said to comprise an average of 12 square miles. The population, for reasons that will appear in the course of this paper, is unusually large, there being nearly 220 people to the square mile. Dr. Livingstone, although he passed up the lake to a latitude considerably north of Lukoma, sailing along the western shore, failed to discover the island. Probably it was entirely hidden from his view by Chisumulu, which he mentions in his "*Zambesi and its Tributaries*," and which he places wrongly in the middle of the lake, exactly half-way from either shore.

The first traveller who landed on Lukoma was, I believe, the late Consul Elton, who with his fellow-voyagers walked all over it in 1877, and who in a work, published posthumously, entitled "*The Lakes and Mountains of Eastern and Central Africa*," has recorded his impressions and made several notes of what he observed during his visit. Since that date the island has been occasionally visited by other travellers and missionaries, while two years ago it was fixed on as a favourable spot for missionary operations, by the Universities' Mission to Central Africa, and accordingly has become the centre of the Nyassa branch of its work.

The island lies equidistant from the northern and southern extremities of the lake. Exactly opposite it, on the eastern shore, are situated two very large towns of Nyassa people, ruled over, the one by a man named Chiteji, and the other by Mataka. All the inhabitants of the island acknowledge more or less the suzerainty of one or the other of these two men. Some few people, indeed, who are immigrants from the further side of the lake, assert their independence of both, but as they are for the most part quiet and inoffensive, it rarely becomes necessary for either of the chiefs in question to "show their teeth."

The lake is very wide near Lukoma, so that even from the island's western shores to the western side of the lake the distance cannot be less than 40 miles. Sailing in a direction WNW. from Lukoma the further shore is reached at Bandawe, the point where the "*Livingstonia*" Mission of the Free Church of Scotland has now its principal station, and of which Dr. Robert Laws is, and always has been, the very life and soul, supported as he is by a band of workers worthy of such a leader. As we look from our island across the lake to the mountains, at the foot of which our Scottish friends are established, our view is obstructed by a high hill on Chisumulu, which effectually prevents all possibility of communication by means of signal-flashing with mirrors. The communication we do hold with them from time to time, is by means of the brave little steamer *Ilala*, which for nearly a dozen years has plied ceaselessly on the lake, and which now, very far from being on her last legs—if so unnautical an expression may be employed with regard to her—is the property of the African Lakes Company. The steamer belonging to our mission, named the *Charles Janson*, in memory of a saintly fellow-worker, who has been called to his rest, also crosses occa-

sionally to Bandawe, and enables us to carry on regular communication with the outside world, by bringing up our letters and stores from the Shiré, which river they are placed on by the Lakes Company, who undertake the charge of them from Quilimane. In addition to these two steamers, there are a man-of-war's galley, a yawl, and a Delta metal centre-board boat, fitted for engines, and also for sailing. The galley and the centre-board boat belong to us, the yawl, originally presented by Harrow School to Mr. Cotterill, who accompanied Consul Elton's party ten years ago, has now passed into the hands of the Scottish missionaries at Bandawe. These four vessels make up the entire sum of the European craft at present afloat on the lake. A great deal of traffic is carried on by the natives in their own canoes or "dug-outs," which are propelled only by paddles, the use of the sail being either unknown or avoided by them. There are also five or six large dhows, built after the usual East African type, and used almost entirely in the nefarious slave traffic. These belong to one or another of the powerful Yao chiefs who have built their villages on the lake shores.

In a full account of Lukoma Island one will be expected to say something both as to its origin and as to that of its name. Treating of the second point first, I may mention that it is through Captain Elton's mistake that it has hitherto appeared as Dikomo in the maps. This name, indeed, it never bears, though as a variant of Lukoma, the pronunciation represented by the spelling Likoma is common enough. The name simply means "beautiful," "pleasant," or "desirable." Of the origin of the name different accounts are given. Some say it was called Lukoma because of its beautiful appearance, as it lies like some rich gem set in the deep blue waters of the lake. But others state, and I am constrained to say that I incline to their opinion, that the island obtained its name because of the safe asylum it affords from the incursions of marauding tribes, with all the rapine and bloodshed that follow in their wake. Natives, we know, have but little regard for scenery and the beauties of nature. On the other hand, they have a very real dread of war, and are keenly alive to the advantages of a place where war seldom, if ever, approaches.

The origin of the island itself is of course a geological question, and one which is far too large for adequate discussion here. I can but drop a few hints to guide those whom the problem may interest, and who have the ability to pursue it further. An answer to the question can only be given in connection with the still larger question, "What was the origin of Lake Nyassa?" And in the present state of our knowledge of the mountains on either side of the lake, and the lithological character of the rocks they comprise, we can do little more than sketch out a few broad outlines.

As far as is at present known, there are no traces of recent volcanic disturbances in the neighbourhood of Lake Nyassa, except, indeed, the remarkable series of lavas, tuffs, and agglomerates at the extreme north end, which form the so-called Konde Range and the Livingstone Mountains, and which Mr. Thomson, the traveller—no mean authority on such a subject—considers to have been in the main the product of one huge crater whose eruption took place in the later Carboniferous period. The origin of the lake must, I think, be traced to hypogene agencies, such as are to be found in the secular cooling, and consequent contraction of the globe. These would give rise to the subsidence of the crust where it has had an excess of density, and in consequence of its upheaval along lines of weakness, such as we may suppose to exist beneath the mountains that now flank each side of the lake. The present basin of the lake no doubt was the seat of this subsidence, and thus the lake itself may be accounted for. Doubtless also the adjacent mountains were upheaved in two enormous and perhaps plateau-like masses of considerable breadth on either side of the lake in the first instance, and at a very remote geological period. Subsequently, subaërial influences affecting these masses have, by erosion and denudation, carved out valleys

and depressions and ravines, and have thus given to the plateau an appearance of a series of mountain ranges. I am of opinion, however, that the practised eye of the geologist would not recognise these as (geologically speaking) true mountain ranges; while at the same time such an one would account for Lake Nyassa on the theory of a local subsidence of the earth's crust, consequent upon the contraction of the inner nucleus due to secular cooling, rather than on that of erosion due to subaërial influences, which, however, sufficiently explain the inequalities of level in the mountain plateau above. If this be the true account of the origin of the lake, then the island of Lukoma is to be regarded as an eminence which, when the subsidence of the district now forming its basin took place, was never submerged. An examination of the lithology of the rocks of the island, as well as of its surface soil, would seem to prove that at no time were they under water, since no traces of lacustrine deposits can be detected in any of them; nor are there any sedimentary rocks to be found, save only here and there a few shales, which are so rare and fragmentary as in themselves to be incapable of proving anything as to when, how, and (what is more important) where they were first deposited. Possibly (it must be conceded) the waters of the lake may have stood at from 20 to 30 feet higher than they do at present, submerging a small portion of the present island where the land lies low, but I think there are signs that the waters never went beyond this limit. A somewhat similar account of Chisumulu Island would have to be given, though since a considerable part of it is low ground and very fertile, a closer examination of its rocks would probably reveal traces of submergence over a far greater area. A remarkable feature in Chisumulu is a high dome-like hill which I have had, as yet, no opportunity of visiting, but which, from the vegetation that clothes it as well as from the crops raised on it, I should guess to be composed of some entirely different rock from those of Lukoma, which are entirely schistose, with here and there a few shales. The schist of Lukoma is very soft and decomposable, in parts micaceous and in parts hornblendic, yielding rapidly to the effects of weathering. It is subject especially to that form of decomposition and disintegration which is brought about by the expansion of the rock when the temperature is high, followed by sudden contraction owing to the fall of temperature at night, causing it to split and flake off, and rendering it more friable than it would be where the climate is not subject to such extremes of temperature.

The denudation of these soft schists caused by water is even more marked than the decomposition effected by the sudden changes of temperature. Each rainy season commits marked ravages upon their surfaces, and helps forward with amazing rapidity the waste and degradation of the rocks that are ever going on. Comparatively compact pieces of rock, laid bare by one season's rains in the bed of some runnel of water from the hills, are completely washed into coarse grit in the succeeding rainy season. No doubt the exceedingly heavy downpours that characterise the tropical rainfall are more powerful as erosive agents than the gentler and more moderate rain of the temperate zones. There are few very large blocks of schist or striking boulders—the hills for the most part presenting surfaces strewn completely over with comparatively small fragments of the decomposing rock. As the rain eats away at the softer parts of the rock, the while diminishing the bulk of the surface stones, these latter get dislodged and rolled down the steeper sides of some of the hills, breaking up into several pieces as they fall. Hence, as a rule, the larger stones or fragments of rock are to be found at the tops of the hills. Where the hills descend more abruptly into the lake, some very large blocks are found at the water's edge, the smaller *débris* having yielded long since to the power of the waves.

From what has now been said about the geological features of the island, it will cause no surprise to any one to hear that the soil is comparatively unproductive. Yet

it would be a libel on it to describe it as wholly unfertile. Although there are but few parts of Lukoma where rice, millet, maize or other cereals, can be grown with any success, cassava flourishes everywhere, as also does a favourite kind of hard ground-nut. The oleaginous ground-nut is also cultivated, but will not grow so freely. The people live almost entirely on porridge (prepared from the flour of the cassava root), the above-mentioned nuts, and fish from the lake, which are often taken in large quantities and in considerable variety. In size the fish of the lake range from a small species like a sprat, which is taken in shoals, and called "usipa," to a large kind of mud-fish, often weighing four or five pounds. There is also a very large fish which is described as resembling the porpoise. This is never taken in the nets, though it sometimes gets into them, breaking and tearing them to pieces. On the whole the fish of Lake Nyassa may be said to be superior in quality to most of the European fresh-water varieties.

It must be confessed that the island lacks a good supply of fine timber, though the large number of gigantic and grotesque baobabs which it boasts, together with some other kinds of trees of no mean proportions, prevent it appearing wholly given over to brush and scrub. Amongst smaller trees and bushes, however, there is an unusually great variety of fruit-bearers, including a wild custard apple (*Anona senegalensis*), a species allied to the *Landolphia*, or india rubber vine, which bears a very favourite though very acid fruit, and a whole series of shrubs yielding different kinds of smaller fruits and edible berries. One of the latter resembles, both in taste and appearance, the whortleberries or "hurts" so common in the old country. It is needless to say that none of these have been brought under cultivation. A well-known poison-shrub—which yields a seed now in great request as a medicine in England, and likely, some think, to rival or surpass digitalis as a remedy in cases of certain affections of the heart—is also common. A plant called "tingu," whose stalks afford a strong fibre, is largely grown by the natives to supply them with string for their nets, the weaving of which forms the principal industry of the islanders.

There is little grass in Lukoma, yet large flocks of goats and no inconsiderable herds of oxen manage to thrive well, finding ample sustenance in the scrub and bushes and plants on which they browse. During the rains a plentiful crop of wild flowers spring up, of which the most noticeable is perhaps a yellow one, not much unlike the corn marigold. On the neighbouring island a much larger specimen, far more closely resembling the English flower, is found. A great number of the trees and bushes bear elegant flowers, and it is possible nearly all the year round to have at least a few flowers for purposes of decoration. There are, however, few that have a fragrant perfume, and I have failed to find even one kind of jasmine—a plant which is common in a very large tract of Equatorial Africa.

Turning now to the zoological features of Lukoma, we find it to possess none of the larger mammalia. The largest wild animals are monkeys, belonging to the sub-family of *Cynopithecina*, of the genus *Cercopithecus*, which I believe to be represented by only one species. The interesting little animal known as the "galago," which is peculiar to the African continent, and which enjoys a very wide distribution therein, with a large number of differing species, abounds in Lukoma. There may be two species common to the island, both of which are very small. This little animal, my readers will doubtless be aware, must not be confused with the lemur, or so-called "Madagascar cat," although its affinities with that animal are so close as to allow of its being placed in a sub-family of the order *Lemurida*. The "coney" of Scripture, the hyrax, is everywhere, true to its description, "making its home in the rocks." Otters abound about the lake shores, also crocodiles, and another large saurian whose skin is in great request for drums. Wild cats roam about stealthily in the wilder

parts of the island, and snakes in considerable variety, many of them deadly, are unfortunately only too common. A huge python, though seldom seen, is certainly an inhabitant of the island. Water tortoises, which are of no great size, frequent the shallow parts of the lake close to its shores.

Amongst the birds the most conspicuous are the great fish-eagle, a kind of diver, several species of hornbill, the ubiquitous crow, and a large hawk. Smaller kinds are, a remarkably beautiful kingfisher, two kinds of dove, a swift, and what must be, I think, a whydah finch. A great number of smaller birds, which I am not able to identify, are common in the island. With regard to domestic animals, I may mention that a large number of a very poor kind of dog, like the pariah dog of so many Eastern countries, is kept, and also cats—these last being remarkable for being always jet black, although the wild cat of the country is an unusually well-marked tabby. Every village has its flock of goats, and there are about one hundred head of cattle, distributed through two or three herds. Fowls and pigeons are bred in abundance.

Having glanced at the geology, zoology, and flora of Lukoma, it is now time to speak of its present inhabitants.

Savage Africa has little or no history. Where people have no culture whatever, there can be no written record of the past. Where also they do not build in stone or brick, or any more durable material than reeds, and wood, and grass, and where even the use of metals is confined to the forging of spears, arrows, and hoes, little can be expected in the way of an archaeological record. Tradition, vague and obscure in the extreme, is all that we have to fall back upon; and this can hardly be trusted for more than half a century of past time. Thus, in asking how long the island has been inhabited, we have little to guide us to an answer beyond our own wits and reason. It is highly probable, I should say, that, owing to its natural advantages, it has never been long uninhabited since this part of Africa first received its population, and when that was, no man living has data enough to allow of his making even a conjecture. As has already been said, its population amounts to about 2,500. Perhaps from one quarter to a third of the people belong to a tribe on the western shore known as the Wankomanga. The rest are all "Nyassas" or "Wanyanja," and are of the same tribe which is found on both sides of the lake in very great numbers. Some of their largest towns lie between the latitude of Lukoma, and one degree to the south of it. Others are found on the eastern side of the lake, and at its southern end. The eastern limit of the Nyassa people is bounded by the country of the Yaos or Ajawa, while to the west of those who live on the further side of the lake, are found the Wabisa and many others. At the extreme north end there are a few people who speak the Nyassa tongue, although a very little to the north of Lukoma such tribes as the Wanindi and Wakinga take the place of the Nyassa tribe, strictly so called.

The name "Nyanja," or "Nyassa," simply means a large piece of water, or as we should say, a "lake," or "sea." It is impossible to determine at present the etymology of the word, though I have no hesitation in saying that Rebman's derivation "Ni-aucha" (love me) must be rejected altogether as fanciful and absurd. It has already been pointed out that the inhabitants of the island are distributed through a number of villages independent of each other, but all more or less under the rule of two powerful chiefs on the mainland opposite, each village having also its head man, who exercises a sort of minor control over the rest of the villagers, and who is the referee and judge in disputes, or "milander" as they are called. On the whole, the islanders may be said to be a peaceable people among themselves, rarely fighting the one village against the other. On the other hand, petty quarrels between one man and another are common enough, and there is no real principle of unity to bind them together. Society properly so called is a thing yet to come, but come it will as Christianity slowly but

surely sows in the hearts of these people the seeds of true civilisation, and points them to the only principles which can build up true social life, and give them a bond of unity.

The main business of the islanders is net-making and fishing. At one or another of these occupations they may nearly always be found employed. If they are not twisting fibre into string for the nets, they are making the nets themselves, or mending them, or casting them. These nets are often very large, and are shared by several families, so that every "take" of fish is divided up amongst the different families owning the nets. Fish is far more plentiful during, and immediately after, the rainy season, though one favourite kind of small fry is almost peculiar to the dry months. Tending the flocks and herds gives employment to some few men and to a larger number of boys.

During the whole of the rainy season, which lasts between four and five months, and for a considerable time after it is over, hoeing, planting, weeding, and agriculture generally occupy the chief part of each day for the women. At other times of the year pot-making, beer-brewing, and various other odd pieces of labour fill out her day for the housewife, who has besides to keep the house clean, prepare and pound the meal, and cook the food for the household. Tobacco is used largely by the Nyassas, not, however, in the form of snuff, and but very seldom chewed. It is smoked in "hubble-bubbles" made from gourds, fitted with a clay mouthpiece. Fathers, mothers, sons, and daughters, all smoke, even the very young children being encouraged to take their whiff when the pipe is passed round, so that it is common for many of them who are scarcely in their 'teens to be constant smokers. But tobacco is not by any means the worst form of stimulant in which they indulge. The islanders also are great drunkards, the evil of drink extending, as in the case of tobacco, to the very young children, who have "moa" (native beer) given to them, even before they are properly weaned. Hence, quite young boys and girls have nearly always a strong taste for the liquor, and very often indulge in the same excesses to which their elders are addicted. As yet, however, the island is happily free from the curse of the European liquor traffic. The native beer, though fairly strong, is the reverse of volatile, and, being very thick, is food as well as drink, so that the effects of large quantities are rather in the direction of inducing a state of torpor and drowsiness in those who have become intoxicated. The brain probably does not become so excited as when the drunken fit has been caused by spirits.

The Nyassa language, or "Chinyanja," as we call it, which is the language of the island, is one of the prefix-pronominal languages belonging to the Bantu family of agglutinative tongues. It would seem to occupy a middle position between the dialects of the Zangian genus and those of the Zulu or southern branches. It is, as compared with some neighbouring languages, such as Yao or Makua, an easy tongue to acquire. Rebman, who more than thirty years ago compiled a dictionary of Chinyanja, was the first to point out its relation to the Swahili of the coast and the (so-called) Kaffir dialects, and to show that its affinities with these indicate its position with regard to them. It bears in its words so many signs of phonetic decay as compared with Zulu, that it is impossible not to regard it as an older tongue, or, to speak more correctly, an earlier off-shot from the original mother tongue of the Bantu than any of the Zulu or Kaffir varieties. A comparative philologist would, I feel assured, support this view of its age, and, if my memory does not deceive me, it has already been put forth by the man who has done more than anyone else towards constructing a comparative grammar of this family speech, Dr. Bleek. An interesting and lucid account of the main features of the Bantu family may be found in Professor Sayce's *Introduction to the Study of the Science of Language*. The whole of the New Testament is now

translated and published in Chinyanja, besides a number of school-books, and a very fair, if not very comprehensive, grammar and vocabulary. The whole of this work has been done by the "Livingstonia" Mission. Dr. Laws, from whose pen most of the linguistic work emanates, has in type the pages of what, it is to be hoped, will prove a very full and copious Chinyanja lexicon. Members of the mission of the Established Church of Scotland at Blantyre have also given much attention to translations in the same language, and are beginning to publish tentative editions of versions of the Gospels and other books of the Bible. So far as I have been able to judge, I should say that Chinyanja has a greater tendency to develop dialectical differences than "Chiyao," its nearest neighbour, which, on the whole, is singularly free from them. A reason for this may be easily assigned. The Yao people are great travellers, while the Nyassas, comparatively speaking, are stay-at-homes. Words, therefore, with the Yaos do not get the same chance of becoming isolated or restricted to one village or small district. With the Nyassas they are more or less subject to such isolation; moreover, the lake itself, which stands in the way of constant communication, helps largely to bring about the dialectical variations of East and West Chinyanja.

It would require a separate paper to set forth fully the religious beliefs and superstitions of the people. Only a few leading features can be dwelt on here. Briefly, it may be said, the people know of God's existence, but it is to all outward appearance an almost wholly infructuous knowledge, leading them neither to worship, fear, nor obey Him. None of them probably would deny His existence, or even His omniscience or omnipotence, though they neither think of Him as a God of love, nor as One to whom the affairs of men are a constant care. They look around on the world outside them, and at themselves, and say, "God made this, and us," but here, for the most part, they stop. A few occasions there are when they supplicate God's blessing on the crops, but only certain members of the community take part in those prayers, and I do not think it can be said to be a universal practice with them either to invoke or make propitiatory offerings to God. The subject is a very obscure one and probably in course of time very much more than we at present know may be found out about it. I feel bound to add, however, that by far the greater number of the people show at the outset profound indifference as to the ultimate issues of life, and of the future state. Exceptions here and there, more especially amongst the younger people, there certainly are, and one and all are willing enough to listen to our preaching; but to say that, as a mass, they are eager to hear the good news of God would be, I must sadly confess, an entire perversion of the fact. As missionaries who have had a somewhat long experience of African natives, this causes us no surprise; and we know, happily, that it constitutes no real reason for being disheartened.

As might be expected, nearly every one lives in almost daily dread of witchcraft, and the belief in it that prevails is the cause often of shocking crimes. Few natural deaths, for instance, occur without its being said by someone that they have been caused by witchcraft. Nor does the matter rest here, for in a large number of cases resort is had to professed medicine-men, who proceed to "ombeza ula" (*Anglicè*, "to consult the oracle"). The "ula" is generally a bag, or skin, or gourd, containing various gruesome-looking articles, such as bones, teeth, pieces of wood, etc. This is shaken by the "doctor," who presently undertakes, by virtue of what it has taught him, to point out the people who bewitched the deceased parties. All believe in the truth of the "ula"; consequently no further questions are asked of the unfortunate creatures whom it is supposed to have pointed out. These are forthwith condemned to die, though sometimes their friends are able to buy them off, and thus save them from undergoing the sentence. More often, however, the terrible sentence is actually

carried out. It is but two months since an appalling case of this kind happened within two miles of our mission-houses, when four wretched victims were burned alive without our hearing one word of it until the dreadful atrocity had been accomplished. Had we known what was going to be done, we could probably have rescued the four poor women from their cruel fate by buying them off with cloth and beads. The ramifications of witchcraft—trial by ordeal, and the like—run through the whole of the social life, such as it is, of these people, creating fear, and suspicion, and mistrust on all sides, breaking up families, severing friendships, and interfering, no one can tell how greatly, with the progress of civilisation and enlightenment.

The great event of the year with the Nyassas, as with so many of the savage tribes of Africa, is the dancing, feasting, and special rites that go on at the time when the "nkole" is held. Every year the young girls from the various villages, from the ages of nine and ten to sixteen or seventeen, who have not previously undergone the ceremony, leave their homes, and for two or three months live in booths under the charge of several women, whose business it is to initiate them into all the mysteries of the "nkole," which consist mainly in certain mutilations which are unnatural and degrading in themselves, as well as being subversive of all ideas of decency. Many of the songs and dances at this "nkole" are of a highly immoral character, and the whole ceremony is a deplorable instance of heathen custom utterly at variance with Christian principles and practice. A girl before she is initiated is called a "butu"; after she has been through the "nkole" she becomes a "mwali." No girl is exempt from these loathsome ceremonies, or ever marries till she has been through them. It will be obvious to any one that no young girls can take part in such scenes as these without becoming contaminated, if not wholly corrupted, by them. It is, alas! the time the young girls look forward to with the greatest eagerness, and look back upon with the greatest satisfaction, so terribly low are the ideas of morality in heathen Africa. The "nkole" is also held for boys, who live in booths far apart from the booths of the girls. In most tribes the "nkole" would be, in the case of the boys, the time when they undergo circumcision, but the Nyassa races are almost peculiar in this part of Africa in not practising this rite. Thus for the boys the "nkole" is only a time for dancing and feasting, and for them there are no bodily mutilations. As in the case of the "nkole" for girls, the songs are of a depraved character, and it is a time when all sense of decorum and modesty is abandoned, and the utmost licence prevails. The only way in which we can hope for the girls' "nkole" to be given up is when the children of those who are now children themselves, and whom we are gathering into the Church by baptism, shall be kept back by their Christian parents from undergoing these detestable rites. It must inevitably be a very long time before this degrading "nkole" will wholly give way before the advances of Christianity, for of all native customs that are deep-rooted and ingrained in the life of the people, this, perhaps the very worst of them, stands pre-eminent.

Our steamer, the *Charles Jansen*, starting as a rule every Monday and returning on Friday, makes a weekly trip along the eastern shores of the lake to a distance of about 80 miles, and visits some seven or eight large coast villages which lie to the south of Lukoma. In one of them we have a flourishing school entirely maintained by one of our Zanzibar scholars. In this village lies buried one whose saintly character will be ever lovingly remembered by all who knew him, Charles Jansen, in memory of whom the steamer bears its name. Regular instruction in religious truth is given daily to the men on board the steamer, and we are anxious that she should in every way keep up her position as a veritable *church ship*. She is a missionary and not a trader, and we want to help her to carry out her profession. Hence we even grudge the time that she has to go off her usual trip in order to carry up our

stores and letters, and look upon this part of her work as an unavoidable necessity ; though it may be confessed that when the good little ship heaves in sight, when we know our letters which we have been waiting for, it may be three or four months, are on board, we are not so ready to think of her long trip as one which has to be regretted !

It is about two years since Lukoma was selected as a station for the Universities' Mission. We are making slow but sure progress at Lukoma. The island probably is a more healthy locality than we could have previously dared to hope to find it ; and, as has been seen, many of the necessities of life, if not also some of its luxuries, are to be had for the buying. Milk, eggs, poultry, goats, and fish we have in abundance. Add to these flour, sugar, coffee, and treacle, supplied by Buchanan Brothers, the enterprising missionary-colonists at Zomba, near Blantyre. Our buildings, it is true, are not as yet of a very permanent character ; but, such as they are, they are convenient and commodious, though all the material, such as bamboos, poles, and grass, have to be fetched over in canoes from the mainland. We have planted a few of the fruit-trees that flourish on the coast, guavas, limes, and lemons : some young fig-trees also that have been planted this year show signs of taking kindly to the climate and soil. As yet, the tomato is the only vegetable that flourishes, though it should be added that little has as yet been done to prepare the soil for other seeds.

I trust that this brief account of Lukoma may have served to kindle some interest in it in those of my readers who are not already familiar with its principal features, through an acquaintance with the operations of our Central African Mission.

FROM NEWCASTLE TO THE YENESEI.*

(BY A CORRESPONDENT OF "INDUSTRIES.")

[Read to the Members, in the Library, March 20th, 1889, by the Secretary.]

As is now generally known, the attempt on the part of the Phoenix Company to follow up their successful voyage of last year has this year proved an unfortunate one. The stranding of a river steamer on the Yenesei, and a series of delays consequent upon this, prevented the meeting of the Labrador and Phoenix. Had the Labrador alone pushed forward—even had Captain Wiggins received no news at Vardo of the condition of the river steamer—the commercial enterprise would have been a success, and cargoes would have been exchanged as planned. This we learnt only upon our arrival in England, where the news awaited us that the river steamer had proceeded to its destination at the Yenesei mouth, despite all expectations to the contrary.

The Phoenix Company offered a chance to the writer to botanise in Siberia, but unfortunately we were able only to reach the limits of that interesting country, to the extreme north of the Urals. We anchored for a few days off a Russian and Samoyede village, immediately to the south of the Yugor Straits. There we were able at once to see something of the country, and also to learn as to the movements of the drift ice in the Kara Sea. As to the latter, it was late in September when we

*This paper, and the illustrations are kindly placed at the service of the Society by the proprietors of *Industries*.

pushed forward to inspect the unusual amount of ice that was lying in the south-west of this sea. We found that there was a wide channel of twenty miles or so between the mainland and the drift ice at the time when we entered the Kara Sea, southerly winds having driven the loose pack to the north. We also skirted to the eastward of this mass of drift and found open water, extending doubtless to the Yenesei mouth. A little time before our entrance into the sea, and whilst we were at the anchorage in the Straits, northerly winds, which have apparently been unusually persistent this season, had forced this ice down upon the southern coasts, and completely blocked the passage to sailing ships. Four Norwegian walrus sloops, having no steam to carry them out of their dangerous position, were forced on shore or crushed by the ice which was so driven to the south. It seems probable that if the winds are from the north, just at the time when the floods of water are pouring into the ocean from the Siberian rivers, ice may never be moved out of the deep bay which forms the southern part of this sea. Unless, indeed, south winds are in early summer frequent and strong, there is no chance of this ice disappearing; nor in colder seasons, such as this last has been, it does not appear that the large broken floes will be melted by the warm waters during the short summer, as Nordenskiöld suggests is invariably the case. Undoubtedly, it is unusual for ice to remain so entrapped in the almost land-locked south-western portion of the sea; for in most years, as in those when the Swedish professor, or when Wiggins has penetrated to the estuary of the Yenesei, there has been no sign of ice. Yet it is doubtful whether, during this last autumn, the large drifted mass lying against the eastern shores of Waygato Island has ever disappeared. Yet in this exceptional year, walrus sloops had followed the ice to the east of Novaya Zemlya, entering the Kara Sea in July and August. The Labrador entered towards the end of September, and it is probable that she could have passed out at any time during the greater part of October, perhaps even in November. No wonder, however, that the Kara Sea has a bad reputation, when such a really unnecessary disaster was met with by the Norwegian walrus fleet. They had obtained but few walrus, and were returning earlier than often is the case, perhaps being somewhat fearful of the large amount of drift ice in the neighbourhood. Four of these sloops, eager to pass through the Straits, ran in between the drift ice and the mainland with a wind that was slowly but surely driving the mass of ice down upon them. The wind veered more to the north. They were hopelessly beaten in their race to the entrance of the Straits. The ice crushed some, and drove others on shore, the men only escaping in their open boats. These Captain Wiggins took back to Norway, saving them a journey of many hundred miles by sledge, from the Petchora to Lapland, which would have been the only possible way for them to reach their own country at that season of the year. We heard that these vessels were fully insured by some Italian company, giving evidence that such disasters are not common. Yet the occupation of these men cannot be a lucrative one, inasmuch as year by year the walrus is met with less plentifully. Perhaps they are driven further to the east, where Nordenskiöld asserts they are more abundant; certainly, fourteen years ago Wiggins reported vast quantities of these animals where now they were nearly exterminated, or from other causes absent.

As only a few travellers have described the north of Siberia, it is well that we should clearly understand as to the nature of the higher latitudes of this vast and interesting country. The accounts which now reach us as to the riches of the south—where the minerals and the rich soils might be made a most productive source of wealth—have no reference to vast extents of dreary land in the north. Nordenskiöld tells us that his Swedes cried out with envy as they passed up the Yenesei, because “of the rich lands God had given to the Russians.” Wiggins, Seeborn, and Sullivan

all speak of the luxuriance of the vegetation, and of the substantial wealth and civilisation of the merchants at Yeneseisk and elsewhere along the great central waterway. They tell us of the almost palatial residences, of the introduction of the telephone, and the electric light in houses and shops. But these are all details with reference to the warmer and richer south, where, although the winter is very severe, yet the summer heat allows of a quick growth of crops, and the more mountainous country is rich in minerals. North of this fertile region is a forest zone, where, although excellent timber has been reported by Wiggins, it is probable that such is not common, owing to the severity of the winter's cold. Following upon this, and extending from the coast for many hundreds of miles, is a dreary expanse of low marsh land covered with the coarsest grasses, or with a succession of almost endless pools and small lakes.

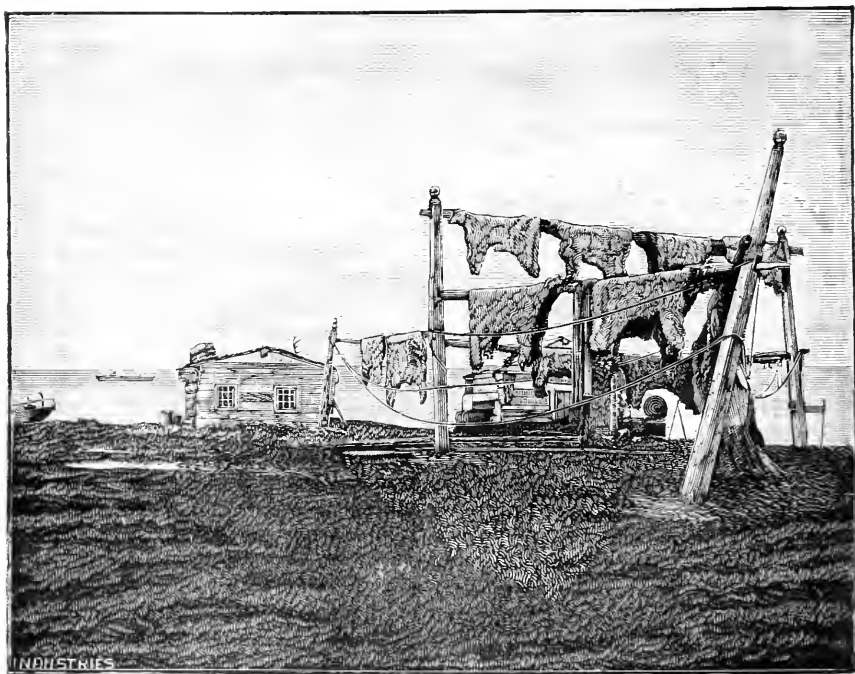


FIG. 1.—Hut of the Merchant Charborora : Bear Skins drying.

This is the "tundra" region, and it may be here remarked that the climate over the great extent of tundra is during the two months of summer probably warmer than that of the highlands of Scotland. Certainly there is no great amount of cold such as is to be met with in the same latitudes in the middle of Greenland, where high snow-covered land and the absence of the Gulf Stream make a vast difference in the temperature and the look of the country. The marshy, low-lying extents of tundra are never traversed even by the nomads who seek pasturage for their very considerable herds of reindeer. In a few places, as in the river valleys and along the coast, or as in the Yalmal land, excellent pasturage is to be found, and the country is more habitable. Although the Yalmal peninsula lying to the west of the Obb estuary is further north

than the whole of the tundra region from the Urals to the Yenesei, yet its vegetation is much more rich and luxuriant, a fact to be explained in part, perhaps, by reason of the sandy soil, which does not hold so excessive and injurious a quantity of water upon the melting of the snows. Along the banks of the magnificent rivers and in places along the northern coasts, there are settlements inhabited throughout the year ; but it was evident, from the preparations of the Samoyedes and Russians at the village of the Yugor Straits, that most in that small settlement would migrate southwards when once the winter set in.

The Russians had a sloop in readiness to take them in October back to the Petchora. There were, perhaps, ten of these merchants, who, since the month of May, had been collecting skins and furs from the natives, which they would sell at Petchora or



FIG. 2.—Harbour of Vardö

Archangel in the winter. The settlement (Chabarova) has lately been rendered more permanent through the munificence of the gold mine owner, Sibirakoff, the wealthy Russian, who aided Wiggins in his expedition with the *Thames* and who has now succeeded in inducing the Russian Government to aid him in the construction of a railway from the Petchora to the Obb, over the northern spurs of the Urals. Sibirakoff has a large store at the village which he uses as a depôt in his trade, which is carried on at present by steamers to the Obb. These steamers are excellent in every way—perfect models of what Arctic-going vessels should be, with their protected wooden hulls, their full rig and powerful engines. This merchant has also presented a church to the village, the wood for which was sawn and put together in Archangel ;

whether or not it serves to protect the store I cannot state. A characteristic feature of the village was to be seen in the numerous skins of bears, which had been shot during the previous winter; these were drying on poles placed about the log huts of the Russians in the manner shown in the illustration Fig. 1. We were surprised at the price asked for these skins, £3 and £4 being their common value, or almost the same price as would be asked in London for the cured article. For furs of the brown and white fox they demanded a rouble and a half. Skins of reindeer might be purchased for two to three roubles, or bartered for sheath knives, which were about the only manufactured articles these men cared to obtain from us. Gunpowder and liquor, doubtless, they would have liked in any quantity; and it says something for the wisdom of the Russian Government that they have prohibited the barter of the latter to these northern races. The people were a dirty and low-statured race, as might be expected; they are said to rank lowest among all the Arctic races contrasting, for instance, very unfavourably with the Lapps as regards the degree of civilisation to which they have attained. On our way to Siberia, as on our return voyage, we called in at the thriving little port of Vardö (Wardoës), situate on an island at the extreme north-east of Scandinavia, and of which an illustration is given in Fig. 2. This belongs to Norway and Sweden, but it is impossible to tell how soon the Russians may extend their dominions further into Lapland, that they may have North Sea ports for naval purposes. The connection by mail service every week to Archangel and the Murman ports, and every week to Bergen, is an excellent one. These mail steamers, subsidised by the Governments, render easy the trade of the merchants along the coast. Perhaps the steamer will wait for several hours, taking in casks of whale oil from a station among the Loffodens, or it may be that dried fish or guano which will be the chief cargo. Nor do they omit the most insignificant place where fishing is a regular industry. Vardö is essentially a fishing station; we, however, saw but little of this during our visit in August last. The excessive population of seven thousand had become reduced to the normal one of under fifteen hundred. The harbour, though well filled with craft of one sort or another, was not crowded, as it is in spring, with between one and two hundred fishing sloops. When we arrived there were in addition to the large mail steamers some score or more of Russian vessels, with the last cargoes of dried or salted fish; perhaps a walrus sloop early returned from the season's hunting off Novaya Zemlya or Spitzbergen; various other vessels, some with timber or coals, a Leith steamer among them, and some of the small whaling steamers.

Concrete piers, in course of erection, showing signs of the winter's frost above the water mark, and diving and dredging operations in connection with the harbour works, all were signs of a commercial activity we had not expected to see. Of course, when we landed at Vardö, the merchants—residents mostly for but half the year—and the magistrates, welcomed Captain Wiggins very heartily; they recognised that if trade, in however small a way, were established with Siberia, by the ocean and river route, Vardö would be the town most suitably situated to serve as a midway depôt, or as a base for communication with home. Their telegraph system is excellent, messages costing less than 2½d. per word. Some of the more sanguine hope yet to see railway communication with the south. This, however, seems likely to remain as an improbability for many years to come.

Next to the trade in fish, of which we saw the last signs in the long rows of dried cod heads, to be used in the preparation of guano, and in the great vats filled with decomposing livers of cod, &c., from which a coarse species of oil is extracted, the whaling industry ranks in importance. There are two or three boiling houses on the island, to which the whales captured, sometimes fifty miles away, are towed. There they

are beached between water marks. Immediately it is possible, men set to work to cut off large strips of blubber, which are hauled up inclined planes by machinery, and boiled down until fit to be casked as oil. The whalebone is not present in much quantity in the "rorqual," which is the species commonly obtained off the Norwegian coast; it is quickly cut off, and the carcass is perhaps by next tide towed away to the guano works. Here the machinery is such that a carcass can be cut up and turned out as guano, of a kind, in the course of twenty-four hours. At times these carcasses are picked up at sea, the blubber mostly decomposed; they are, however, never left, but yield considerable profit, if not on account of the oil to be extracted, because of their value for guano. This is a source of wealth denied to the whalers of the Davis Straits, where the carcass is always rejected, but, where, on the other hand, the whalebone is much more plentiful. The two systems are, of course, different in Norway and in Greenland. In place of the large whaling vessels, with their vats on board, the Norwegians have active little steamers, capable of running at about twelve knots per hour. In these they chase the whales, with a man at the masthead to telegraph to the engineers and to the man at the wheel. In the bows is placed a large harpoon gun, moved at will from side to side, and fired with about as much ease as a pistol. The aim is never attempted at a distance of over 30 or 40 yards, if so much. We saw one of these little steamers turning from side to side, and moving with astonishing rapidity in chase of a whale, just off the North Cape. Later we were shown the gun and harpoons, the size of the latter being remarkable. I attempted to take a photograph of two of these after they had been recovered from the whale. The size of the cable attached to them when fired gives some indication as to the comparative size of the harpoon. When they strike the whale, an explosive mixture in the shaft of the harpoon is ignited, commonly killing the whale at once, and at the same time fastening the harpoon with more security in the carcass. Three stout barbs, each about a foot in length, are by this thrown out from the shaft, forming a secure anchor as it were in the body of the prize.

I believe that the whales brought to Vardö are often quoted in London a few hours after their arrival. A whale is spoken of as a "three-inch" or "four-inch" whale, according to the thickness of the layer of blubber—a kind of dimension peculiarly ludicrous to the uninitiated. They may fetch £150 to £200 each; but as in a good season 80, or even 150, of these may be captured, there is a considerable margin for profits. During the last two years, however, this industry has not flourished; it is probable that the whales have been driven further from the coasts than the whalers care to pursue them, as there is always a possibility that the whale must be abandoned in a storm. We saw more whales, indeed, when 100 miles or more from the coast of Norway, and distant two days' voyage from the North Cape, on our way to the east. Indeed, the merchants in Vardö appeared uneasy lest they had arrived at a chronic condition of bad times. They have petitioned Government for an inquiry as to the probable causes of the failure in cod fishing, the Government sending as an inspector a no less competent naturalist than Professor Sais to inquire into the matter. There is certainly no question as to the riches of those seas in the amount of the fish they contain; it is a question, however, as to why there is less abundance than in former years. It has been suggested that the whaling has something to do with this—but the connection is not very apparent.

We saw nothing of the shark hunting, said to be another profitable industry of the north and north-west coasts of Scandinavia. Not uncommonly did we see cat-fish and the curious leather made from their skin; and also the abodes of the eider duck, which bird is heavily protected by Government—as one of the lesser sources of wealth. We also saw signs of the trade in skins of reindeer carried on with the Lapps both at

Vardö and Tromsö, but it is improbable that this trade is an extensive one. Tromsö we found to be a busy little place, whilst at the same time it rejoices in the title of the "Paris of the North." Many of the walrus hunters had returned from the Spitzbergen hunting. The whalers and fish merchants living there throughout the year had prepared for the severe northern winter, which had shown signs of its approach when we left. The population is more than twice that of Vardö. It was of interest to notice that the limit of trees extended slightly further north than Tromsö, the birch, not the pine, being the most frequent.

THE EAST AFRICAN QUESTION.

(Letter from the Rev. W. C. PORTER, M.A., a Life Member of the Society, Universities Mission, Newala.)

January 17th, 1889.

Dear Sir,—I hardly know how to begin a letter when I have been silent so long, and you may have thought that I ought to have found something interesting to write and I'm not sure whether I have ever acknowledged what you have sent me. But on the other hand, people must be almost nauseated with the subject of East Central Africa, and anything fresh may very likely be foolish too. However, it is a wide order, and there are very likely differences in details in different parts, and any small contribution to the great question how to treat it, and cure its one monstrous evil, may not be despised, or, if mistaken, help out the true solution. First, then, as to our own present condition in present circumstances. It rather resembles on watch against a leopard and being set upon by a lion. We have been accustomed to looking for danger and trouble from the west, and now rises up this from the east, which at the same time may aggravate the evil from the west by provoking Arab connection among the chiefs near Nyassa, and even the Magwangwaras themselves, who depend a good deal upon the coast demand for slaves, for getting rid of their captives and getting their cloth. Again, as has been forcibly represented, the prohibition of introduction of arms and ammunition is a terrible blow to natives about here dependent upon such weapons for the protection against spears, shields, and knobkerries of their worst enemies. Our chief and only real trouble, through this emeute on the coast and the blockade, hitherto, has been the great danger in which one of our coast parties were in from the Arabs at Lindi, who threatened their lives. They were rescued by the magnanimous conduct of three Arabs—one of whom is an old acquaintance of ours, at whose house on the upper part of Lindi Creek we have often stayed. Another party since then has gone and returned safely. Another favourable circumstance has been the refusal of the strong chief Mchemba (who defeated the Magwangwaras in May last) to accept the overtures of the Arabs to make common cause with them. As he lives on the route our coast parties take now, and only about two days from Lindi, and a day and a half from one of our mission stations, his friendship is of the utmost importance, and we must hope that he will keep true to this policy. It is a great comfort to hear that the mail steamer may very likely call at Lindi for some months longer at any rate. Of course, we don't know what at any time may be the next turn in events. Severe measures by the Germans at Chioinje Kilwa might send Arabs there in great wrath to Lindi, to retaliate at the latter on anyone connected with Europeans. We may also have trouble from caravans from the interior, from chiefs under Arab or coast influence—as, especially, Makanjila, at whose town Mr. Johnson and the Vice-

Consul were so badly treated, and whose caravans have a bad character. If, as has been suggested, Portugal joins the blockade, we should be shut in on the south-east too. If not, we may be able to make use—if Lindi is closed to us—of Mzimba, or some other port south of the Rovuma, and thus open communication by Dhow with the mail steamer at Ibo or Mozambique. I should like a trip to the latter place that way. The Portuguese are so weak, and so despised and hated by the natives, and also so half-hearted about suppression of the slave trade—if not favourable to it—that their share in the blockade would probably be a mere farce. Anyhow, here we are very much in *status quo*, waiting in true African fashion for the next news, and ready to hear that, as usual in these parts, the unexpected has come to pass, only one learns not to expect, only be ready for any eventuality. And now, if one may venture a remark on the policy which has caused us all this distress and anxiety, and may cause something more sooner or later—not, of course, the conduct of the Germans, on that point there can be no question for those who regard the best interests of the natives, and who wish to pay due respect and do justice to all men, whatever their creed or hereditary wrongmindedness, but the policy of blockade, with the view of really destroying the slave trade. If a sufficient number of ships could be employed, if a long enough line of coast could be covered, if the blockade could be kept up a long enough time, if the outlets in the interior to the north and south could be closed, if the slave trade depended only on the traffic over the ocean—then the blockade might destroy it, would probably do so. But as none of these conditions are likely, then it is, at least, a very imperfect step to that great end, and a measure the advantage of which (if employed by itself) is very much counterbalanced by the evils too probably resulting from it, such as—(1) the great hindrance caused to efforts—philanthropic, scientific, mercantile, missionary—being made in the interior to improve the condition of the people, the hindrance, *i.e.*, which will arise from the increased enmity of the Arabs and others profiting by the slave trade; (2) the increased horror of a longer journey by roundabout ways to reach the coast, where unguarded with greater cruelties on account of the exasperation of the owners; (3) the establishment in greater force of Arab centres in the interior, on the great lakes and rivers, and greater influence with the more powerful chiefs; (4) the destruction of the legitimate trade on the coast—ivory, tobacco, &c.; (5) the depriving the natives of their means of defence against invasion, and on journeys against enemies human and animal. Really, to check the slave trade, and cut, once and for ever, the root of it, more than blockade on the coast is wanted; for the idea of getting another man or woman to be under him, in one of the many degrees of slavery, is widely and deeply ingrained in the African mind. The raiding for, or kidnapping, old or young seems to have become the recognised employment and amusement of the more powerful. The endless and complicated system of retaliation for bygone—ever so far bygone—offences of all kinds continually gives a reason and excuse for man-stealing. The contempt by Arabs, and those who want to imitate them for agricultural or pastoral or manufacturing employment, creates a demand for slaves. Surely all this wants curing, if the slave trade is really to be swept off the face of East Central Africa. And how are these evils at the root of the slave trade to be cured but by such efforts, in the heart of the country, as the Scotch Trading Company—the agricultural undertaking on Mount Zomba of the Brothers Buchanan—the opening up the country and training the natives in proper use of their powers by such as the Nyassa and Tanganyika Road. The grand attempt at establishing a proper civilised government, *with the consent and through the agency of the people themselves*, as that of Emin Pasha;* and, perhaps, it should be added, the

* Let the Germans on the coast imitate him (their compatriot) in his way of colonising, and all success to them!

abortive plan of the Belgian (?) Company, on the east shore of the Tanganyika, at Karema (?), and the missionary establishments throughout the land, which, besides their main object, incidentally I will venture to say further, the above-mentioned methods of raising the character and turning in a right direction the energies (such as there are) of the people themselves, and so slowly, but effectually, healing the constitutional evils, which do so much to support, and encourage, and invite the slave trade, even if first introduced from without. Of course, at the same time, let the traffic on the sea be prevented as much as possible, as formerly, without running the risk of causing other evils on the mainland. Allusion has been made chiefly to the interior, but, remember, that (unless I am greatly mistaken) a great many slaves are disposed of along the coast. The conclusion of the matter seems to be this. If the good feeling of Europe is being really aroused to put an end effectually to this terrible curse of Africa, let it use no half measures, but make a crusade philanthropic, scientific, mercantile, missionary, on the interior, as well as restrictive on the coast, with a real purpose (and so most carefully avoiding the introduction of gin, &c.) of ameliorating our fellow-creatures, who have—as those who have lived some time among them know—such capacity for goodness and greatness. What world of good in this direction might be done by such an establishment on (to speak of what, to some extent, one knows) the Mtangwi (Mtonge) Hills, about 100 miles east of one of the headquarters of the Mangwangwaras (Sonjelas)—a kind of lesser Matasi, seen at a little distance, with plenty of water at the base, and near an old path inland from the coast—and how many such spots might be found as near, or at, the Majaje Hills, or other hills near the Rovuma. I will not try your patience any more. Possibly at all this you would, if a Makua, take a pinch of dust from the ground and throw it over your right ear, i.e., “it’s all a lie,” or “what humbug!” Kimakua “wota” (pronounced *water*). You see we are in the midst of the rainy season, which this year has come in full force at the beginning, and the warm intervals between the downpours are debilitating.—I am, yours very truly,

W. C. PORTER.

THE SLAVE TRADE IN CENTRAL AFRICA.

The following letter to the *Times* from the Rev. A. M. MACKAY, C.M.S., is of interest:—

Victoria Nyanza, January, 1889.

In the last number of the *Times* to hand in this distant region (dated October 5, 1888), I have read with much satisfaction Commander Cameron’s proposal to establish a British association which shall maintain an anti-slavery cordon along the line of the great lakes of Central Africa. The interest which is now being awakened in Europe regarding Central Africa affords to those of us who are familiar with the atrocities daily perpetrated in this continent some hope of definite steps being at last taken to put an end to these horrors. It is so difficult to write anything sober on this gigantic evil without being accused of exaggeration, although exaggeration is scarcely possible, that I shall confine myself to an examination of Commander Cameron’s scheme, with a view to show how far it will prove successful, and where its failure will chiefly lie.

In 1871 Livingstone wrote: “The evils inflicted by these Arabs are enormous, but probably not greater than the people inflict on each other.” This is especially true as regards Buganda and Bunyoro. These countries have generally large armies in the field, in one direction or another, devastating whole regions of their inhabitants. The Arabs, as a rule, do not join these expeditions organised for wholesale murder,

but they supply the guns and the powder, and receive in payment women, children, and ivory procured in the raids. The demand for slaves in Buganda itself is very great, it being only the surplus which is carried off by the Arabs. Every year some 2,000 slaves, as nearly as I can estimate, are purchased by Arabs, and conveyed by water from Buganda to Usukuma, where the march to the coast begins. It will be no light undertaking to stop this trade on the water, but granting that it can be done, what means are to be employed to prevent the tenfold greater loss of life and liberty in the countries raided on by the Buganda?

Arabs are obsequious enough in the presence of force greater than their own, but in the interior of Africa they have found that by making a firm stand they can defend their interests, however unlawful, against Europeans who oppose them not for their own interest, but as hirelings engaged on philanthropic work which has hitherto not been carried on with determined whole-heartedness. Take a few instances. On the Upper Nile the Arab slavers have carried the day against a hesitating English army, grudgingly sent by a ridiculous route and hurriedly withdrawn at the moment of victory. On the Upper Congo the poorly-manned station of Stanley Falls was easily taken by a gang of slave-hunters, and one of the greatest slave-hunters on earth is now placed in charge, where he is subsidised by money from the Congo State—a Power pledged by the Berlin Conference “to employ every means that it can to put an end to the trade, and to punish those who engage in it.” On the Nyassa two or three slavers have wellnigh ousted the representatives of missions and commerce there. Finally, in East Africa all the coast acquired by Germany has fallen an easy prey to a few desperadoes and their allies. Nothing of all this would have been attempted had the Arabs not seen the feebleness of the force opposed to them in every quarter, and the readiness with which Christian effort is nowadays abandoned on the first reverse. Even in the waters of Zanzibar the nefarious slave traffic is pursued with almost complete impunity, because, as one of your correspondents (Mr. Highton, of the Universities Mission) writes, the English cruising boats are small, slow sailing, and of an obsolete type.

How are the Arabs in the Soudan, on the Upper Congo, on Nyassa, and on the Zanzibar coast, or the kings of Buganda and Bunyoro able to carry on this organised system of slaughter and slave-catching? It is only because of the thrice blind policy of allowing them to procure *ad libitum* supplies of gunpowder and guns. It is Europe, and, I hesitate not to say, especially England, that is yearly supplying these men-killers with the means whereby they carry on their deadly work. Men talk of free trade, but there can and must be no free trade in instruments of rapine and murder.

Here we have the astounding phenomenon of a continent bleeding at every pore, and of a feeble, ineffective effort made at the coast to check the export of slaves, while at the same time a few petty European merchants in Zanzibar are pouring into the interior, unchecked, arms and ammunition, without which not a single raid could be made by Arab or Buganda. It is like one man plugging up the outlet of a deep-seated abscess while others are saturating the blood of the patient with poison. Tribe is stimulated to annihilate tribe, and Arab encouraged to prey upon all, merely by their being allowed as much as they want of manslaying material. If this is not a policy of *dementia* I know not where madness is to be found. For years we have been sowing this bitter seed, and now we mourn as we begin at length to reap the bitter fruit in assassination and defiance. The British vessels which bring out missionaries and Bibles to evangelise Africa, bring also, and in far greater number, Enfields and breechloaders which convert the continent into a hell. The Church Missionary Society has already spent over £150,000 within the last dozen years in the endeavour to introduce Christianity into East Equatorial Africa; but all their labour and expen-

diture is rendered well-nigh fruitless by the continual wars and intrigues carried on upon the strength of the guns and gunpowder supplied by Christian traders, who are too cowardly to venture inland themselves, for their wares would probably cause their assassination. The murder of Herr Giesicke in Tipu Tip's courtyard at Unyanyembe was not unexpected. Again and again the Buganda have confessed to me that it is the guns which enable them to carry on the work of "killing" the neighbouring countries. Livingstone, too, writes in his "Last Journals" (vol. II., p. 57): "If spears alone were used, the Manyema would be considered brave, for they fear no one, though he has many spears. They tell us truly that were it not for our guns not one of us would return to our own country."

Here, then, lies the weak point in Commander Cameron's otherwise laudable scheme. Hundreds of thousands of pounds sterling may be expended in maintaining gunboats on the Nyassa, Tanganyika, and the two Nyanzas, but if the gunpowder traders are to be still left free to supply their bloody tools, no triple cordon of gallant officers will ever be able to put a stop to slave-hunting in Central Africa. Commander Cameron is right in not recommending that the Government should take in hand the work of forcibly checking slave raids in the interior. Even in these days of State-socialism, I believe that an independent association of determined men will more effectively do the work. But, whether the association be international or exclusively British, it must in the first place secure the sympathy and support of the principal Governments concerned. England and Germany are in East Africa. France protects Comoro and Madagascar. Belgium is responsible for the Congo State, while Portugal claims vast regions in both East and West. All these five Governments must be asked to pass and enforce stringent resolutions forbidding the importation of arms and ammunition. A cordon of sufficient strength, such as Commander Cameron suggests, will do the rest; but without that security no such cordon will effect one particle of good. The work to be done is, therefore, threefold—viz., (1) stop the influx of arms and ammunition; (2) increase the vigilance at the coast by more and better cruisers; (3) establish the cordon of police on the upper waters of the great rivers.

As long as the Arab remains in Africa he will trade in slaves, and in spite of his doing so he will be regarded by the natives as a friend, simply because he trades in other things as well, and there is a demand for these. To rid Africa of his presence, we have only to take the trade out of his hands. If Europeans succeed in supplying the natives with calico and other goods of lawful barter, they will entirely supplant the Arabs, who will retire in vast numbers to their own country. But to do this the barbarous and inhuman method of employing porters to carry loads must be abandoned. No European merchant can employ labour of that kind, and hope at a profit to undersell the Arab merchant. If he transports his goods by animal power, on the backs of elephants or buffaloes, or preferably in the wagons hauled by these, he will without question succeed in securing all the ivory trade, because he will then be able to give more cloth for a tusk. But be it remembered that millions of natives in Central Africa demand cloth, but have no ivory wherewith to buy. The Arab accepts a slave from a poor man for the little cloth he wants, but what can the European accept in exchange? Produce will not pay the expense of freight to the coast, even by wagons drawn by elephants. Hides, tobacco, cotton, and coffee will be offered for sale in many parts, but will be found not worth the carriage over a hundred miles. The one means which will alone succeed will be the construction of rough tramways to the great lakes and other centres of dense population. These, with branch tracks for elephant wagons as feeders, will enable traders to exchange calico for country produce, and will effect the threefold purpose of supplanting the Arab entirely, of developing the resources of the country, and of promoting internal peace, for the natives will then

busy themselves with growing whatever they can get a fair price for, instead of fighting with one another as hitherto. Then will come an end to slave-hunting by the Arab; for if this proposal is carried out he will have no powder or guns wherewith to shoot down helpless tribes; and when other trade is also taken out of his hands he will disappear altogether. Already in Zanzibar all the trade has passed into the hands of Indians, which demonstrates the inability of the Arab to compete on fair terms with other traders. Raiding tribes, like Buganda, will also be easily controlled, for a European trading company can insist, as the first condition of their bringing supplies, that murderous raids on neighbouring countries shall cease forthwith.

The British Association, with its anti-gunpowder and anti-slavery cordon, will prove a valuable police force in preventing the smuggling of either ammunition or slaves, only it must be strong enough, even from the first, not merely to provoke resistance, but to overawe all attempts at defying its authority. The Arabs are now becoming desperate, and no feeble measures dare be used to oppose them; only such as will insure success. Those who will hold the ammunition will hold the key to the whole interior for good or for evil. Permission may be given to companies, but by no means to private traders, to sell a limited quantity to chiefs who undertake to keep the peace. But may there be no continuance of the present infatuation of one party trying to punish slavers, and another all the while being allowed to furnish these same slavers with an unlimited supply of the instruments of their deadly traffic.

I have quoted the opinion of Livingstone on the question of supplying slavers with ammunition. Let me conclude with the words of another authority on Central Africa. In one of the last letters I have from Dr. Emin Pasha, dated Wadelai, August 25, 1887, he writes: "*The conditio sine quâ non* for the peace and prosperity of these countries is to stop the importation of firearms, ammunition, and powder. The English and German Governments should agree on this step, and punish with relentless severity offenders against their proscription. Mwanga and Kabarega would very quickly come to terms on seeing their powder stores empty."

A Little-known Race.—It is supposed that the East Greenland people originally came from Norway, and were wrecked. Their food is raw meat, oil, and blood; nothing else. Once in a great while a mother warms a bone for a baby, but otherwise nothing they eat is ever cooked. They often get blind from looking at the snow, and suffer much with their eyes. They get out of their heads with pain. In "twilight" they have starlight, and even in the night season it is light enough to get about. They line and carpet their huts with furs. When they sleep they roll up in furs. If a man is an old bachelor he sews his fur up like a sack for his bed, with but one end open. He crawls into it head first, and sleeps. When he awakes he crawls out of it backward. There is no difference in station or quality, save in one particular. The man who owns a flint is the rich man. The one who does not is the poor man. The flint and walrus tusk are the only means of lighting the fires. Those who do not have them must borrow. If they get out of food, fire, or clothes, they borrow from their neighbours, who cheerfully lend. They are the most contented people in the world. They get flints from the ocean when the ice breaks up. The man who wants a wife must steal her. He first begins his courting by going to the house of his girl to borrow from the old people. After it has become noticeable that he comes often the family begin to watch, and keep guard over the girl; not that they object to him, but because they say if he will be a good husband let him show his skill by stealing her away without our knowing it. If he succeeds in getting the girl out of the hut without anyone knowing it, well and good; she is his wife. If he tries and is caught, he is killed, and the girl looks on and laughs. She does not want such a bungling husband. No Greenlander ever tells a lie. The children are punished cruelly and peremptorily, by having a bone heated till the fat boils out of it and their flesh burned by it. They never repeat an offence after punishment. They do not run around like our children, but are obliged to sit still with their arms crossed tightly in front. This shortens the arms, especially of the girls.

PROCEEDINGS OF THE SOCIETY

FROM JANUARY 1ST TO MARCH 31st, 1889.

EIGHTY-SECOND MEETING

Of the Society, held in the Library, January 16th, 1889, at 7-30 p.m.

Mr. J. C. BLAKE in the chair.

The minutes of meeting held December 12th, 1888 (81st), were read and approved. Nominations of new members were announced.

The following paper by Mr. HOLT S. HALLETT, M.INST.C.E., &c., was read by the Secretary:—

ON THE RIVAL ROUTES TO CHINA.

(For Map see p. 145, Vol. I., and p. 141, Vol. III.)

IN criticising a pamphlet entitled "Indo-Burma-China Railway Connections, a Pressing Necessity," printed by W. Blackwood and Sons, the *Rangoon Gazette*, in the course of a leading article headed "Lions in the Path," in its issue of October 19, 1888, remarks that "It will be time enough when Siam asks us to guarantee her against foreign aggression, before that objection is brought forward as an obstacle in the construction of a line to or in Siam. The construction of a line from Bangkok to her northernmost frontier, or, in other words, to the Chinese frontier, would contribute greatly to that country's prosperity, while it would undoubtedly open out the country to British commerce in a way that can hardly be dreamt of now. Experience has shown that wherever a line of railway is laid, there, along its whole extent, towns and villages spring up. Vast tracts of land are laid under cultivation where once only a howling wilderness or dismal swamps existed. The province of Tenasserim, a most fertile but much-neglected portion of Burma, would once more become prosperous under the influence of even one railway; and if that railway were between Maulmain and Siam, the glories of our sister port, converted once more into an emporium, and into a distributing medium for Anglo-China-Siamese commerce, might once more revive."

The article goes on to state that "The idea of a railway to the Chinese frontier, *via* Bhamo, which the writer of the pamphlet referred to advocates in preference to the Colquhoun-Hallett project, because it lies within our own territory, is plausible rather than practicable, for the reason that a long caravan journey is involved over a hilly country, which all travellers have agreed in declaring to be a barrier to anything like a development of an important trade. A railway between Bhamo and Mogoung (to connect Bhamo with Mandalay) or Manwyne—if such be feasible, which we doubt—might aid greatly to develop the resources of those parts of the country; but it would not much help in tapping the wealth of Western China. A line, on the other hand, from Maulmain *via* Zimmé to Ssumao or Esmok, which Hallett has by his surveys shown to be quite practicable, would act like an artery; while developing the resources, mineral and agricultural, of all the regions it traverses, it would enable us to throw British goods right into the interior and bring back in return the produce of Siam and China for shipment at Maulmain. We may not reap immediate results; but three years at the most would suffice to realise all that we anticipate."

Such is the opinion in Burma in connection with the rival schemes. Since 1881, Mr. Colquhoun and I have constantly advocated not merely the connection of Burma

with Siam and China by railway, but the extension of the line from Rangoon through Mandalay to Bhamo as an important section of our projected Indo-Burmese Railway. In 1882 I advocated this latter scheme before the British Association ; in December, 1886, before the Royal Geographical Society ; in January, 1887, before the Ipswich Chamber of Commerce, and in the next month before the Society of Arts. Far from opposing the suggestion of a railway to Bhamo, we have done all in our power to keep it before the public ; but we have done this because we knew that Bhamo was the commercial port of the Chinese Shan States, which lie to the west of the Salween river, and not because we considered the railway would possibly draw the trade of Central and Eastern Yunnan. Even Tali-Fu, which lies only twenty-five days' journey to the east of Bhamo and forty days from Rangoon, is separated from Bhamo by such alpine country that it draws its goods from Canton—a distance of eighty-one days' journey. Only the other day I was assured by Major Adamson, who has for long been in charge of the Bhamo district, that the trade of Bhamo was nearly entirely with the Chinese Shan States, and that all thought of connecting even Bhamo with Mandalay by railway had been given up owing to the difficulties encountered on the various routes leading to it from Mandalay and Mogoung. The trade route from Bhamo to Yunnan-Fu, along which Mr. Gordon proposed carrying a railway, is thus remarked upon by Mr. Colbourne Baber, of our Chinese Consular Service, who accompanied the Grosvenor Mission in 1876, and surveyed and levelled the route : "The trade route from Yunnan-Fu to Teng-yuch (or Momein, the frontier fort of China with the Chinese Shan States) is the worst possible route with the least conceivable trade." Again, he says : "I do not mean that it is absolutely impossible to construct a railway. By piercing half-a-dozen Mont Cenis tunnels and erecting a few Menai bridges, the road from Burma to Yunnan-Fu could doubtless be much improved."

I will now take Sir Charles Bernard's single objection to our proposed Burma-Siam-China Railway, which was made by him at a meeting of the Scottish Geographical Society in November, 1887, and quoted by "Old Arakan" in his pamphlet. Sir Charles Bernard said : "They (Messrs. Colquhoun and Hallett) advocated a route through Siam and the Eastern Shan States into the extreme south of the Yunnan province, and advised that a railway by that route should be guaranteed by the British Government. So far as *his own opinion* went, however, he should think it very doubtful whether the British Government could take upon itself to guarantee and protect a railway which passed for a considerable portion of its length through a foreign country—Siam. Siam would probably say there was only one condition upon which she would permit the British Government to make, guarantee, and protect a railway through her territory—namely, that Britain should guarantee the whole of the Siamese empire from all and every enemy whatsoever." In our "Report on the Railway Connection of Burma and China," under the head of "Methods of Construction," Mr. Colquhoun and I stated : "There are two methods of construction available : (1) State construction ; (2) Private company under guarantee. Under the first the British and Siamese Governments would construct their respective portions. But in our opinion it will be found necessary to adopt the guarantee system. Our Government should guarantee the whole through line, making the necessary arrangements with the Siamese Government for refund upon the portions within Siamese territory." Our reasons for the latter statements were that we thought it would be better for traffic to have the two lines under the same management, and we knew that syndicates were asking 7 per cent guarantee from the Siamese Government, and would certainly not require more than 4 per cent from the British Government. If our proposals were accepted, and the Siamese had determined to guarantee, instead of construct, the line, they would thus have been saved nearly half the cost of the

guarantee. But the objection of Sir Charles Bernard is entirely dispelled by the Siamese Government taking the construction of their railways entirely in their own hands. In March, 1888, four months after Sir Charles Bernard's lecture, Sir Andrew Clarke arranged with the King of Siam for surveys and estimates of the branch from Raheng to Bangkok, proposed by us, as well as for the portion of our through line from Raheng to Kiang Hsen, the Siamese frontier-port on the boundary of the British Shan States that lie to the east of the Salween river. The remaining portions of our proposed railway to China lie entirely in British territory, and would have to be constructed or guaranteed by the Government of India. There can, therefore, be no political objection remaining to the construction of the railways from Maulmain to Bangkok and China. When passing through Rangoon, in January, 1885, Sir Charles Bernard told me that Mr. Satow, our Minister in Siam, had written to him that "in his opinion Siam would be ready to carry out its part of the projected railways if the Government of India expressed its willingness to connect the two countries by railway." It now appears that whether the Government of India is willing to connect the intended Siamese lines with Maulmain or not, the Siamese are bent in carrying out their part of the projected railways. Sir Charles Bernard, in his lecture, went on to state that: "The ancient route of traffic between Burma and China was by Bhamo and the Irrawaddi valley. We ought to make the most of that route, and exhaust its possibilities, before we committed ourselves to creating another and a *wholly new route*. No doubt the lofty passes on the old path between Bhamo were most serious obstacles to a railway on that route. But it might be possible to find much easier gradients if the Shweli Valley, and other valleys leading towards Sunningfoo (Shunning Fu), instead of to Talifoo, were examined. A thorough examination of the country would take *one or two seasons*." There is no reason that I know of for saying that the Maulmain route to China is "a wholly new route," or to imply that it is any less ancient than that *via* Bhamo. The Maulmain route has been traversed for centuries by caravans from China to Lower Burma, and even now, when steamers are plying for nine hundred miles up the Irrawaddi river to Bhamo, large bodies of Chinese from Yunnan proceed yearly *via* Kiang Hai and Zimmé to Maulmain. Mr. Archer, our Consul at Zimmé, reported when on his journey from Zimmé to Kiang Hai in 1887, "This is the route taken by the Ho or Yunnanese traders, on their yearly trading expeditions to Moulmein (Maulmain); they begin to arrive in Chiengmai (Zimmé) about the beginning of December, and now about the end of February, I met the first caravans returning with cotton goods purchased at Maulmain, which they proposed to sell at Chiengtung (Kiang Tung). Their parties consist generally of from 50 to 100 mules or ponies, and this year it was estimated that altogether about 800 pack animals passed through Zimmé."

We will now consider the upshot of the first season's examination of the country. In the *Asiatic Quarterly* for last October, Captain Yate, who was one of the Intelligence Department officials deputed to examine the portion of the Shan States lying to the south of Mandalay, and between the Irrawaddi and the Salween rivers, thus describes the country: "The scenery of the Salween, Namtu (Myitnge, which enters the Irrawaddi a few miles south of Mandalay), and a score of minor rivers and streams, the perfect clearness and rapid flow of the water, the overhanging cliffs, and often almost precipitous hillsides. . . . The road may run for miles along the backbone of a hill range, 6,000 feet high, pine forest on the summit and a life-giving air that reminds one of the 'old country,' while below, in the ravines and gorges, is vegetation as luxuriant and brilliant in colouring as anything to be seen in the tropics. At other times the road winds for thirty or forty miles down a narrow gorge along the banks of a rushing, tumbling rivulet, with steep hills rising straight up overhead for several

thousand feet." After such a description of the country explored by him, to the south of the Namtu, it is not surprising to find him endeavouring to solace himself with the hope that a better line for engineering purposes might be found in the country to the north of the Namtu, which had not then been explored. He writes: "My impression is that an advantageous line of country may be found (for a railway) across the plateau that stretches from Theinni Myo and the Namtu valley, between the valleys of the Salween and the Shweli, to the iron bridge at Meungkeu (the bridge over the Salween crossed by the Bhamo route). But much more exploration is necessary before a definite opinion can be given on this point." We learn something of this plateau in a note on the first page of his article, where Captain Yate remarks: "Immediately north of the Namtu the country rises 1,000 feet as in a step, and then stretches north at this higher level to the Shweli (Nammau) river, and thence onward to the valley of the Taping." Now, Toungbain is the state to the north, on the plateau between Theinni and the Shweli river. In his work "The Coming of the Great Queen," p. 335, Major Browne, late commandant of the Mounted Infantry in Upper Burma, remarks that Toungbain "consists of lofty highlands from 6,000 to 7,000 feet in elevation." Even further west, in the Ruby Mines District, the plateau varies from 4,100 feet to 6,100 feet, and the surrounding hills from 6,400 feet to 7,800 feet above sea level. This being the case, and the whole of the Shan plateau between the Irrawaddy basin and the Salween being "seamed with ranges of hills," in fact, a perfect maze of them, as can be seen in the map of the Ruby Mines District lately published in the Royal Geographical Society's proceedings, and in the map made by Mr. Gordon of the Taping and the Shweli valleys, the impression expressed by Captain Yate is surprising, to say the least of it, particularly if he has studied Mr. Baber's section (published with our report) across the pass traversed by caravans from the Shweli valley to the iron bridge across the Salween at Meungkeu. The rise from the Shweli river to the top of the pass is 4,430 feet. The pass lies 8,730 feet above the level of the sea: a crag to the north-east of the pass appears to attain to a height of 13,000 or 14,000 feet, and the fall to the iron bridge is 6,300 feet from the summit of the pass. The aspect of the gorge is thus described by Mr. Baber: "Looking up that lone avenue of precipices, between which the deserted river threads its silent way, one cannot suppress a certain sentiment of solemnity."

Supposing that this feat of joining Mandalay by rail with the bridge over the Salween is accomplished, what then? Two more passes, one 6,980 feet and the other 8,166 feet above the sea, have to be crossed before the Meh Kong is reached at a level of 4,920 feet above the sea, and then another pass has to be crossed at an altitude of 8,510 feet before Chu-tung is reached. Chu-tung, like Ssumao, is situated on the edge of the Yunnan plateau, and, like Ssumao, is 187 miles distant in a bee-line from Yunnan-Fu, the capital of Yunnan. Bhamo and Ssumao would be each 700 miles by rail from a Burmese seaport, and all of this terrible alpine country between Bhamo and Chu-tung would be avoided by carrying a railway from Maulmain *via* Ssumao, instead of from Rangoon, *via* Bhamo, to Yunnan-Fu.

Mr. Archer, our Vice-Consul at Zimmé, reported in 1887 upon the portion of our proposed railway that lies in Siam and its Shan States as follows:—

"BEST ROUTE FOR RAILWAY THROUGH NORTHERN SIAM.—If the railroad were made to pass through Zimmé, the great mass of mountains between the city and Kiang Hai would probably prove a serious difficulty. But if it were to follow the valleys of the Meh Nam and Meh Wang as far as Lakan (our route) there would appear to be no great natural difficulties to overcome, and thence north-eastward to Muang Ngow the road would lie over easy, undulating country. From Muang Ngow to Penyow the watershed of the Meh Nam and Meh Kong must be crossed; but it is of no great

elevation (merely undulating ground), and I believe would not present any serious difficulties. Once this range is passed, the whole way to Kiang Hsen, and some distance further northward, is on almost quite level ground, apparently highly suitable for a railway. This route I think preferable, not only because it offers greater natural facilities, but because a large portion of the country traversed is capable of great development, and it is evident that the advantages of a railway to these states are based, not on the actual wealth, but on the consequent development of the country."

From Kiang Hsen the projected railway runs through British territory up the valley of the Meh Kong to a few miles beyond the old city of Kiang Hung, and then ascends the slope of the Yunnan plateau to Ssumao, the frontier-post of south-west China. The members of the French exploration of 1866-67 followed this part of the route for about half the distance from Kiang Hsen towards Kiang Hung, encountering no difficulties, and then struck inland, as it was the rainy season, and the plains bordering the river were swampy. For the whole length of the projected railway from Bangkok, *via* Raheng, to Kiang Hung, there may therefore be said to be no obstacle to the construction of the railway. From Kiang Hung to Ssumao the rise would be alongside the slope of the plateau, and only 2,526 feet in height. The branch line from Raheng to our seaport Maulmain presents no serious difficulties. Mr. McCarthy's survey, which was published by the Royal Geographical Society three or four months after he read his paper before that society, clearly shows the correctness of Mr. Bryce's and my remarks at that meeting. The whole distance between our frontier at Myawady and Raheng, where our Maulmain branch line would join the Siamese main line, according to his survey, is barely forty miles. Only a single range of hills has to be crossed. This is not precipitous, and it has branch valleys on both sides, which will greatly assist the development of the line over to the pass. One of the passes over the range, according to Mr. Ross, Mr. Bryce's assistant, is only 2,400 feet above the sea, or 1,770 feet above the Thoungyen river at our boundary; and the fall to Raheng is about 2,000 feet. A little to the north of our pass a peak of the main range was crossed by the late General McLeod at an elevation of 2,685 feet above the sea.

After considering the above facts, it is evident that even the difficulties lying between Mandalay and Bhamo would be considerably greater than those to be encountered on the whole length of 700 miles between Maulmain and Ssumao, the frontier-post of South-Western China, together with those on the 268 miles between Raheng and Bangkok.

An examination of the map, after considering the above statement, will show the great advantages that the railway from Maulmain *via* Ssumao to Yunnan-Fu must have over the line suggested by Sir Charles Bernard, Mr. Gordon, and Captain Yate for connecting Rangoon with the same place. These advantages may be summed up as follows:—

1. Ssumao lies in a rich and populous part of Yunnan, 350 miles to the east of Mandalay, and, therefore, so much nearer in a crow-line to the populous parts of Szechuen.

2. A railway from Ssumao to Yunnan-Fu will be only 250 miles in length; while one from Bhamo to the same place, either *via* Shunning-Fu or Tali-Fu, will be at least 967 miles. The line from Ssumao can be constructed by the Chinese at one-fifth of the cost of a railway from Bhamo.

3. The line from Mandalay, *via* Bhamo, to Yunnan-Fu, thirty miles beyond Bhamo enters and passes through the Chinese Shan States, which, according to Mr. Gordon, contain, beside the hill tribes, 250,000 Shan inhabitants. Leaving these at Momein it would cross an alpine region to Chu-tung, and then traverse the poorest and least inhabited part of Yunnan.

4. The line from Maulmain will draw to a port in Burma, besides the trade of Western China, that of the Burmese (now British) Shan States lying to the east of the Salween, containing about one and a half million inhabitants, and the trade of Siam and its Shan States, containing nine million people. The line from Rangoon would have no effect upon the trade of these regions.

5. The line from Maulmain, *via* Ssumao, to Yunnan-Fu would be 950 miles long, whilst that from Rangoon, *via* Bhamo, to the same place would be 1,667 miles, or nearly double the length that the projected French railway would be from Port Courbet in Tonquin.

6. The line from Maulmain is the shortest British line that can be made for the connection of a British port with South-Western and Central China, and is the only line that could compete on equal terms for the trade of the western half of China with the French line from Tonquin.

7. The era of railways has commenced in China, and, according to Prince Chun, it is intended to carry them out first of all in the mining regions of the empire. If our railway is taken to Ssumao, there is, therefore, every probability of its serving as a nucleus for railways permeating through the Western Provinces, which are acknowledged to be the wealthiest in minerals of any in China, and into Eastern Szechuen, which is known to be the most affluent and most populous region in China.

8. The continuation of a railway from our territories into and through the Chinese Shan States and Western China will rest entirely with the Chinese Government. It is certain, as certain as night follows morning, that the Chinese will never consent to carry a railway across the great alpine and unpopulated region lying between Chu-tung and Bhamo. Bhamo will never be connected with Yunnan-Fu by rail; and however the route may be improved for mule caravans, these will still take forty-two days in traversing the distance between the two places.

9. Ssumao is only twenty-one days' journey from both Tali-Fu and Yunnan-Fu. The cost of carriage from Bhamo to Yunnan-Fu (allowing 150lb. as a mule load, and a rupee a day for hire) must be £42 a ton, or double the charge from Ssumao. Whatever tends to lower the price of goods tends to an increased consumption. A difference of £21 a ton in favour of goods landed at Ssumao instead of at Bhamo would insure not only a vast increase of customers, but the carriage of many kinds of goods which cannot at present be conveyed owing to the enormous cost of transit. Goods can be conveyed ten times from England to Hong Kong and back for the present cost of a single transit from Bhamo to Yunnan-Fu.

A lengthy communication from Mr. R. HENRY GIBSON, B.A., of Taranaki, New Zealand, was also read by the Secretary.

A letter from the Venerable Archdeacon MAPLES, Lukoma, was read by Mr. Warren.

A lively discussion on the papers read ensued.

Professor CORE moved, and Mr. J. SNADDON seconded, a hearty vote of thanks to the writers of the papers, and to the Chairman, which was carried unanimously.

EIGHTY-THIRD MEETING

Of the Society, held in the Memorial Hall, Friday, January 25th, 1889, at eight p.m., Prof. T. H. CORE, M.A., in the chair.

A most interesting collection of Chinese curios had been lent for inspection by the members by the Rev. G. Owen, Councillor John Mark, Mr. Kelsall, the Rev. L. C. Casartelli, M.A., Ph.D., and of coins by Mr. Egbert Steinthal and friends.

Mr. E. Steinthal had also drawn on an enlarged scale a number of diagrams of coins, which were hung in the room.

The CHAIRMAN explained the absence of Dr. Greenwood and the Rev. S. A. Steinthal, and referred to the very interesting addresses we were to listen to on Chinese coins and on Peking. The Society would recollect that a short time ago resolutions of thanks to the Holy Father and to Cardinal Lavigerie were passed by the Society for the interest taken by them in the suppression of the slave trade. The resolutions had been forwarded to the Holy Father by the Bishop of Salford, who had, in reply, received an autograph letter, which he had very kindly presented to the Society, and which would be kept amongst the papers of the Society. He would read the following passages of the letter which referred to the Society :—

“LEO P. P. XIII.

“Venerable Brother,—Health and Apostolic benediction. The official letter signed by the chairman and other officers of the Manchester Geographical Society, on December 5th, and forwarded by you to us, has filled us with great pleasure. For it indicated clearly the kindly sentiments of that Society towards ourselves, and, what is more important, the lively feelings of philanthropy which animate all its members. For we perceive that all are equally anxious that those unfortunate creatures who are oppressed by the yoke of slavery should be restored to the natural dignity of man, and endowed with the rights of free citizens. Although we could not doubt of the agreement of individual Englishmen in this grave matter, with the authorities of their Government, whose earnest desire to abolish the curse of slavery has been clearly demonstrated, still we have been especially pleased with this explicit testimony given by a distinguished Society in a city eminent beyond all others for its commerce and busy industry. This confirms and increases the hope which we already entertained of a favourable agreement and friendly co-operation on the part of all good men for promoting a work which we ourselves have urged and have endeavoured to our utmost ability to assist, inasmuch as it involves the welfare and liberty of an infinite number of human beings and the dignity of human nature itself.

“We desire you, therefore, to make known these our sentiments to the distinguished persons who forwarded the above-mentioned letter to us, and also to the entire Society which approved by its vote a declaration so full of human kindness. We beg you to assure them of our particular goodwill towards their attention and courtesy. . . .

“Given at St. Peter's, Rome, Dec. 29, 1888, in the 11th year of our pontificate.

(Signed) “LEO P. P. XIII.”

The SECRETARY made announcements as to the future meetings of the Society.

Mr. EGBERT STEINTHAL then read a paper communicated by Mr. Consul Gardner, of Hankow, on Chinese coins.*

The Rev. GEORGE OWEN, of the London Missionary Society, Peking, then addressed the members on “Peking and the Pekingese.” (See p. 1.) The address was listened to with great interest.

Some discussion took place upon both addresses, and questions were asked, to which Mr. OWEN very fully replied.

The Rev. S. A. STEINTHAL then moved, Mr. J. C. BLAKE seconded, and Mr. A. A. KRAUSS supported the following resolution, which was passed with great cordiality :—

“That the thanks of the Society be given to his Lordship the Bishop of Salford for his gift of the Pope's autograph letter. To Consul Gardner for his very interesting paper, and to Mr. E. Steinthal for drawing the illustrations and reading the paper. To the Rev. George Owen for his admirable description of Peking and its

* This paper, fully illustrated, will be issued during the year.

people. To the Rev. L. C. Casartelli, Mr. Kelsall, Councillor J. Mark, Mr. Owen, Mr. E. Steinthal, and all those who had contributed to make the Chinese collection so interesting and instructive."

The Rev. G. OWEN responded for all.

Mr. KELSALL moved, and Dr. CASARTELLI seconded a hearty vote of thanks to Prof. Core for kindly presiding, which, being passed unanimously and responded to, closed a very full and interesting meeting.

EIGHTY-FOURTH MEETING

Of the Society, at the Memorial Hall, Wednesday, February 6th, 1889, at 8 p.m., Mr. RICHARD BARKER in the chair.

The Rev. THEOPHILUS PARR, M.A., formerly Primitive Methodist Missionary in Fernando Po, addressed the Society on "Fernando Po: the Island and People." (See page 20.)

After Mr. Parr's address, which aroused great interest, questions were asked and replied to, and at the request of the meeting Mr. Parr sang some verses in the language of the aborigines of the Island of Fernando Po.

Mr. MOLESWORTH moved, and Mr. LUKE seconded, a very hearty vote of thanks to Mr. Parr for his very interesting address.

Mr. PARR responded.

The SECRETARY moved, and Mr. BELISHA seconded, a vote of thanks to the Chairman, which was heartily carried.

EIGHTY-FIFTH MEETING

Of the Society, held in the Library, Wednesday, February 20th, 1889, at 7-30 p.m.; Mr. MARK STIRRUP, F.G.S., in the chair.

Minutes of meetings held January 16th (82nd), 25th (83rd), and February 6th (84th), were read and approved.

The election of the following members by the Council was announced—Ordinary: Messrs. Walker Allen, jun., S. F. Armitage, J.P., Alderman Wm. Batty, J.P. (Mayor of Manchester), Fredk. Cawley, Edward Davies, Wm. Evans, J. G. Hill, Henry Jefferis, Henry Kessler, W. E. Melland, Henry Somerset, Adam Sykes, John Wilson, Harold Woolley. Associate: Messrs. Alderman Wm. Baron, T. Bramwell, Rev. Cyril C. Child, Ishmael Davies, Jonathan Fielding, Councillor Joshua Hampson, S. C. Orton, Rev. A. Redman, M.A., Lees W. Tatton.

FLOODS IN CHINA.

The SECRETARY read the following communication from Sir Halliday Macartney, K.C.M.G. :—

"Chinese Legation, London, 9th February, 1889.

"Dear Sir,—As a member of the Chinese Legation, I desire to offer you and Mr. Krauss my best thanks for the philanthropic interest you are taking in the sufferings of the inhabitants of certain parts of the country with which I am diplomatically connected, and I sincerely hope that the efforts you are about to put forth on their behalf may be abundantly successful.

"As requested by you, I have marked out in the map appended to the copy of the Society's Journal that accompanied your letter of the 5th instant those parts of the country where the famine is most severe, distinguishing between those where the distress arises from inundation and from drought.

"I am afraid, however, that these marks—green for the flooded districts and yellow for those suffering from the effects of want of rain—will, owing to the small-

ness of the scale on which the map is drawn, convey but a very inadequate conception of the enormous area over which destitution of the most abject nature prevails.

"You may, perhaps, be aware that the distress is not confined to the central provinces of China, but that it extends to parts of the country too far north to be seen in Mr. Little's map. Floods in Manchuria, caused by the overflowing of the Liaou river, have devastated large tracts of country in the Moukden and Newchwang districts, thereby producing an amount of suffering which will be much intensified by the almost Siberian winter by which they are annually visited, but which this year is said to be exceptionally severe.

"I thank you for the number of the Society's Journal you were so kind as to send me for myself, and by the same post that takes this I return you the second copy of the publication marked in the manner I have described.—I am, &c.,

(Signed)

"HALLIDAY MACARTNEY.

"Eli Sowerbutts, Esq., F.R.G.S."

Mr. P. McLAIN, Mr. J. M. MOLESWORTH, C.E., and the Rev. Mr. TURNER spoke at length on the subject from personal knowledge of the districts and from special knowledge, from having aided in the distribution of the funds subscribed for the last great famine in China.

It was then announced that Sir T. Wade, the Rev. Mr. Turner, and others intended to address a meeting next day on the subject in the Mayor's Parlour, and thereupon Mr. A. A. KRAUSS moved, the Rev. L. C. CASARTELLI, M.A., Ph.D., seconded, and Mr. J. M. MOLESWORTH C.E., supported, the following resolution, which was carried unanimously:—"That the Manchester Geographical Society notices with pleasure that a meeting has been convened by his Worship the Mayor of Manchester to take steps to raise funds for the relief of the famine-stricken districts in China, and the Society desires to support the movement with all the influence in its power."

A letter announcing the death of Mr. Arnold Dehn having been read, it was resolved that this Society desires to tender to the family of Mr. Dehn its most respectful sympathy and condolence on the sad event.

The following Presentations were announced:—

Letts's Popular Atlas. By the Publishers.

Map of Africa. Published by Carl Fleming, of Glogau. By Mr. N. Kolp.

It was resolved that Mr. Krauss be requested to write to the Shanghai Branch of the East India Society, inviting them to become correspondents and exchange journals.

The following paper was then read by the SECRETARY:—

M. Tondini de Quarenghi's Proposals in Reference to the Universal Adoption of the Gregorian Calendar, from the Paris Geographical Society.

FORMOSA.

The Secretary then read some remarks on Mr. Colquhoun's paper on Formosa, by MR. J. RIPPON, C.E.

Reading Mr. Colquhoun's paper on Formosa has suggested to me the following remarks: There is only one natural harbour capable of accommodating a good-sized ship, and this is Kelung. Here dredging is about to be done, and quays and warehouses are planned, the object of the present governor being to cut out Hobé (Tamsui) and Amoy, place the tea market at Twatutia, and send on by rail for final shipment to destination by ocean-going steamers, which have been induced to come to Kelung. It is exposed to north-east and northerly winds. The anchorage at Tamsui is affected by deposits after every freshet caused by heavy rains. The bar here and at Takow requires con-

tinual dredging. During the south-west monsoon Black Head is the rendezvous for vessels crossing over to Tamsui and Makang or Dome Bay (Pescadores), and are ports of shelter for Amping and Takow. Rivers in Formosa, as elsewhere, are subject to gradual formation of banks. On the south-west coast the silting up is remarkable and rapid. From a survey taken we found it to be very different to that marked on the charts, and the gradient of the bottom, for instance, due west from the Old Fort outwards to deep water, is a gradual one of fine dark sand. The western coast line is difficult, being low and without leading marks. Trees are frequently mentioned on our existing charts, but one tree is so much like another that this information is not of much use. The whole island is, in my opinion, *placed on our maps four miles further eastward than is really the case*, and this result was arrived at after connecting the island in two places with cable—practically laying a measuring tape down. The two results agreed. The Formosa Islands are not very well lighted. I know of only one first order light at the South Cape. There is a sixth order light at Fort Zelandia. I tried to find it for some time under anxious conditions. At Saracen Head there is another sixth order light; Fisher Island—a rather better one—fourth order; a beacon at Tamsui and at Bush Island (Kelung harbour); but not much confidence may be placed in anything but a first order light. Telegraphs now run from nearly one end of the island to the other, but they are in bad order where they have been set up for some time. The trade value, as shown by the Custom receipts, say of Tamsui and Kelung, is 5,434,463 taels; and Taiwanfoo and Takow, 2,583,625 taels—in all about 2,000,000 pounds sterling. Takow has little or no import trade, and is now rarely visited. There are only a few foreigners there. The export of sugar from Amping is rapidly falling, owing to heavy export duties imposed by the present governor to meet extraordinary and too rapid outlays. In 1884 it was 897,110 piculs, and in 1886 362,826. Camphor has become a government monopoly. Coal may improve, as the management of the collieries has been given to a very able and honest engineer (Mr. Matheson). Formosa tea is of a peculiar but very fine scented flavour. The quality is declining, owing to neglected Chinese cultivation. The fauna of Formosa consists of monkeys, wild deer, boar, badgers, martens, and the scaly anteater. Birds and snakes are not numerous. The history of the island is a very short one. In 1661 it was virtually owned by the Chinese. The Dutch founded several settlements in 1634. In 1661 a Chinese pirate, Koxinga, settled and assumed sovereignty over West Formosa. His grandson and successor was induced 22 years later to abdicate in favour of the Chinese. The Hakka settlers, a hardy tribe of hillmen, are resolute foes of the aborigines and act as a 'buffer.' In 1874 the Japanese landed a force to punish the Chinese on the north end of the island for wrecking and maltreatment of some stranded Loochooans. From 1884 to 1885 the French held Kelung, but were beaten away from Tamsui.

The SECRETARY read

THE PRELIMINARY REPORT OF THE QUEENSLAND GOVERNMENT
METEOROLOGIST (MR. C. L. WRAGGE, F.R.G.S.) FOR THE YEAR 1887.

To the Honourable the Postmaster-General.

Meteorological Office (Chief Weather Bureau),
Brisbane, 26th October, 1888.

Sir,—I have the honour herewith to submit a preliminary or outline report, prefatory to my first Annual Report of the Meteorological Branch of the Post and Telegraph Department, together with a syllabus of the contents of the same. Owing to the peculiarly heavy nature of the work attaching to the organisation of a scientific

and thoroughly practical meteorological office, training assistants, establishing and inspecting observatories, the examination of monthly and daily reports from over 180 (rising 250) stations, apart from the results from the newly-constituted instrumental stations; the preparation of many diagrams, charts, and synopses—important branches of the work which have to be executed with the utmost nicety; and my recent duties at the Melbourne Meteorological Conference, the main report is not yet finished, although rapidly approaching completion. However, I shall, of course, continue to use every effort to hand it to you at the earliest practicable moment. I have now the pleasure to hand you this introductory outline, venturing to think that you will concur with me in the belief that I am the better doing my duty to the colony by taking time sufficient to enable me to launch what I humbly hope will prove a standard work on the climate, than by hurrying through my volume at a sacrifice of accuracy and completeness even to place it on the table of the House within the session. I may add that as the organisation of my system evolves, the report will obviously be ready earlier each year, until I shall be enabled to present it to you probably as early as March following the year to which it belongs, or even sooner.

I was informed of my probable appointment to the position of Government Meteorological Observer to Queensland when in Adelaide in November, 1886, and took office on January 1st, 1887. During December, 1886, I arranged with the officers at Adelaide, Melbourne, and Sydney for a complete system of intercolonial weather telegraphy, to commence on January 1st following, including Western Australia, Northern Territory, and Tasmania (New Zealand added later), and settled that such messages should be wired to Brisbane as exchanges; since, in order (a) to correctly interpret the climatic factors of Queensland, and (b) to make the office of practical use to general interests, especially by the issue of daily weather forecasts, a knowledge of the meteorological conditions prevailing over Australasia cannot be dispensed with.

On December 31st, 1886, no meteorological organisation (properly so called) existed in Queensland, and the daily reports published on the boards and by the press were very meagre, and frequently inaccurate. Specimens of these 1886 reports will appear in my coming volume.

By December 31st, 1887, Brisbane had become, as a matter of fact, the chief weather bureau for all Australasia, whether recognised as such intercolonially or otherwise, by reason of this office having taken the entire initiative in issuing Australasian signal forecasts similar in principal to those framed at London and Washington. A special feature of the work was the inauguration of a larger weather chart of Australasia, containing a graphic record of all the chief meteorological elements published by this office daily, except Saturdays, Sundays, and holidays (still continuing), and sent to subscribers, and also to institutions, scientific societies, &c., in various parts of the world in exchange for their publications. Our donations from abroad are rapidly accumulating in the shape of books, reports, and such like, and hence I am forming a very valuable official library. I regret that, notwithstanding frequent applications, I have been unable to obtain certain donations of books sent to Brisbane anterior to my taking office and belonging to this Department.

Our system is managed entirely in accordance with the rules and principles of the Royal Meteorological Society, Meteorological Office, London, and Chief Signal Office, Washington, than which no better are known. The following is the syllabus of my forthcoming Annual Report:—

SECTION I.—Complete account of organisation, system, inspection, and work.

SECTION II. (A).—Results and tables, comprising: Rainfall of North Queensland, rainfall of South Queensland, prevailing winds, force of wind, and mean amount of cloud. Abstract of reports for each month, with notes on stock, state of country, &c.,

from every post and principal telegraph station, and also from many squatting stations, in the far west and elsewhere. Climatological and other tables from all stations supplied with instruments. Specimens or description of daily weather reports. (B).—Selected correspondence.

SECTION III.—Diagrams and maps, comprising: Meteograms from Brisbane Observatory, giving a graphic record of all the chief meteorological elements for entire year. Temperature curves for Blackall, Brisbane, Bulimba, Cambooya, Cape Moreton, Cooktown, Ipswich, Lowood, Rockhampton, Roma, Sandgate, Stanthorpe, Toowoomba, and Warwick. Diagrams of the climates of Adelaide and Roma in the interests of wheat production in the Maranoa. Adelaide temperature curves for comparison with those of Brisbane. Four seasonal wind charts. Four seasonal cloud charts. Six selected and seasonal copies of the large daily weather chart of Australasia. Earth temperature curves, rainfall maps, &c.

An outline account of the work during the present year (1888) is found in the Postal Guide, and also appears as an appendix hereto. Specimens of daily registers, monthly and weekly synopses, sundry diagrams and charts, are also sent to be laid on the table of the House herewith, but are not intended to be printed or rather to appear as part of this introduction to my Annual Report. Photographs of the instruments of the Brisbane Observatory are also sent.

If, sir, by any effort of mine I have been enabled to place Brisbane in the honourable position of being practically on a meteorological footing equal to that obtaining at London and Washington, at least in the matter of the signal weather forecasts already referred to, I have but done my duty to the shipping and general interests of Queensland in Australasia. Indeed, accepting the experience, with the situation, of the Chief Signal Office at Washington as a criterion with reference to forecasting for the United States, it will be difficult to gainsay the suitability of the geographical location of Brisbane for a continuance of the position we at present occupy.—I have, &c.,

CLEMENT L. WRAGGE,

F.R.G.S., F.R. Met. Soc., &c.

A considerable discussion arose from the reading of the papers, and votes of thanks to the writers of the papers and the Chairman closed the proceedings.

EIGHTY-SIXTH MEETING

Of the Society, held in the Cheetham Town Hall, on Friday, February 22, 1889, at 7-30 p.m.; Mr. S. OGDEN, J.P., in the chair.

A large number of photographic slides was admirably shown by Mr. Stanley, and were described by several members. The views comprised views of East Africa by the Rev. Lawrence Scott, of the Congo by Mr. R. C. Philips, and of Athens by Mr. Pingstone, and some fine views of Scotch scenery lent by Mr. Chapman.

Miss Edie Webster performed on the piano, and songs were sung by several members and friends.

Very hearty votes of thanks to the musicians, to the lenders of the slides, and to the chairman were given on the motion of the Rev. S. A. STEINTHAL, seconded by the Rev. L. C. CASARTELLI, M.A., Ph.D.

Mr. OGDEN responded, and said that he was very much pleased to preside over a meeting of this kind held by the Society so well attended, and hoped that many others, of a like interesting character, would be held by the Society.

EIGHTY-SEVENTH MEETING

Of the Society, held in the Memorial Hall, on Wednesday, March 6, 1889, at eight o'clock p.m.; Mr. S. OGDEN, J.P., in the chair.

Th death of Mr. R. Peacock having been announced, Mr. M. STIRRUP moved, and Mr. F. ZIMMERMAN seconded, a resolution, "That this meeting of the Manchester Geographical Society desires very respectfully to tender to the family of the late Mr. Peacock their very cordial sympathy and condolence in the loss they have sustained in the close of a life so nobly spent as that of our late member, and that the resolution be duly transmitted."

The SECRETARY read a communication from the Rev. A. Colbeck, of Lindley, on "The Sea of Azov." (See p. 29.)

Mr. J. M. MOLESWORTH, C.E., addressed the members on "A Journey from Tientsin to St. Petersburg" (see p. 36), which was illustrated by a large diagram map and a very choice and beautiful collection of photographs and curiosities lent by Mr. Molesworth.

Several questions were asked and replied to by Mr. Molesworth.

A vote of thanks to the Rev. A. Colbeck and to Mr. Molesworth, for his very admirable address, was passed with great heartiness on the motion of Mr. H. WOOLLEY, seconded by Mr. A. A. KRAUSS.

Mr. MOLESWORTH replied, and promised other papers, and proposed the thanks of the meeting to the chairman, which being seconded by Mr. LUKE, was carried unanimously.

Mr. OGDEN replied in a few graceful words, and the meeting closed.

EIGHTY-EIGHTH MEETING

Of the Society, held in the Museum of Owens College, on Saturday, March 16, 1889, at 3-30 p.m.; the PRINCIPAL of the College in the chair.

Professor W. BOYD DAWKINS, F.R.S., &c., received the members, to the number of about one hundred and fifty, and gave two addresses on the design and arrangement of the Museum.

At the close of the addresses, Mr. Councillor BOSDIN T. LEECH moved, and Mr. J. HAINSWORTH seconded, a resolution, "That the best thanks of the Society be given to the professor for his kindness in addressing the members, and for the opportunity of examining the Museum."

The resolution was heartily carried.

Professor DAWKINS responded.

The members then proceeded to examine the exhibits show in the building, and were very much delighted with the arrangements of the contents.

EIGHTY-NINTH MEETING

Of the Society, held in the Library, on Wednesday, March 20, 1889, at 7 30 p.m.; Mr. B. O'CONNOR in the chair.

The minutes of the meetings held on February 20 (85th), 22 (86th), March 6 (87th), and 16 (88th) were read and approved.

The presentation of three very beautiful geographical monographs by Prince Roland Bonaparte was announced.

The election of the following members by the Council at its last meeting was announced :—

ORDINARY : Messrs. G. H. Armitage, H. W. Bleackley, Raymond T. Eddy, Alderman S. Ogden. J.P., J. H. Reynolds, and Robert Smith.

ASSOCIATES : Messrs. Charles A. Clarke, Cammack Dennis, S. Grady, Thomas Henry Hall, Fridolin Landolt, Edward Samson, H. Sowerbutts, Assoc.N.S.S., and George Vernon Webster.

The death of Mr. Alderman Goldschmidt and the letter sent to his family by the chairman and vice-chairman was read. The members very cordially endorsed the message of the letter, and desired to be included in those who respectfully sympathised with our late trustee's family and friends.

The following reply from the late Mr. Peacock's family to the vote of condolence passed by the Society was read :—

[COPY.]

"Ralph Peacock and the family of the late Mr. Peacock return sincere thanks for kind sympathy and remembrance, highly valued.

"Gorton Hall, Gorton, March, 1889."

Announcements as to meetings up to June and the excursion to Paris were made.

Mr. G. H. WARREN then read a communication from the Venerable Archdeacon Maples on the "Island of Lukoma." (See p. 59.)

The SECRETARY read a communication on "From Newcastle to Yenesai," from a correspondent of *Industries* (see p. 68), and a letter on "El Senoussi and the Mahdi," a paper by a correspondent of the *Manchester Guardian*.

EL SENOUSI AND THE MAHDI.

CAIRO, FEBRUARY 19.

THE report of the victory of the Senoussiya in Kordofan, which reached us more than a fortnight ago, seems to be confirmed, and if all that comes to us with regard to it is true, the Khalifa cannot long hold his position at Omdurman. A glance at the map will make the position clear to your readers. Khartoum stands, surrounded on three sides by water, in the fork made by the branching of the Blue and the White Nile. The Mahdi, fearing the difficulty of crossing the river in case of an attack in force which might oblige him to evacuate the town, preferred to establish himself, after Khartoum had fallen, at Omdurman, on the left bank of the White Nile. From Omdurman the road lay clear for a retreat into the mountains of Kordofan. It seemed that in that country his enemies might be safely faced. But in making these dispositions he counted upon an enemy which should come against him from the north, and upon a devoted Kordofan, the cradle and stronghold of Mahdism, in his rear. Now the conditions are reversed. El Obeid, the principal town of Kordofan, is reported to be in the hands of an enemy more formidable perhaps than any which was at all likely to have marched against him up the Nile. What was his front has become his rear, and if he attempts to retreat it must be through the desert of which for five years he has rendered every oasis desolate, to fall at last upon an Egyptian frontier bristling with bayonets, and lined with tribes who seek only an opportunity to rise against him. Since the success of the Egyptian troops at Suakim, refugees from the border have become more numerous, and everywhere the story is the same of ruin and devastation worked by the wild hordes who have hitherto obeyed him. Even his troops detest his rule. The towns and villages that he has destroyed are so many vengeance stored up against him for the day of his defeat. He dare not risk the being taken between an opposing force marching up against him from the south and such a line of hostility on the north. What is to be expected is that he will abandon Omdurman without

waiting for an attack, and endeavour to slip past the approaching army into the fertile district of Sennaar. Then he will have lost the Soudan, and all the territory which lies between the present frontier of Egypt and the old frontier of Mehemet Ali will be in the hands of the power which has risen against him. And who and what is this power? The report telegraphed at first from the frontier, and now given us in greater detail by the arrival of Messedaglia Bey himself in Cairo, is that El Senoussi, with Saleh Bey, the chief of a very important tribe of the Western Soudan, who did us good service, it will be remembered, in the Nile campaign—Raabeh, once chief of Zebehr's forces—the Sultan of Dar Sula, and the Sultan of Wadai, who is a devoted adherent of Senoussi, have marched at the head of a large army through Darfour and Kordofan, taking Faschen and El Obeid, and are now preparing to march against Omdurman. Their troops are said to be as "numerous as ants in a granary," and El Senoussi is reported to have written a letter to the Khalifa, in which, after indicting him as a robber and one of the basest of mankind, who, not content with stealing a province from its sovereign, has spread ruin and misery in it from one border to another, he declares his own intention of taking the Soudan from the Khalifa, and restoring it to peace and order and to Egypt.

A rising of the Senoussiya has not hitherto been reckoned with as one of the probabilities of the Soudan, but if it has indeed taken place it is likely to prove an event of the greatest interest and importance to Egypt. Sid Hamed Senoussi, their present head, is the eldest son of Sheikh Senoussi I., the great Mahometan reformer who founded the sect about a century ago. Since his establishment in Tripoli in 1843, the spread of the doctrines which he preached has been one of the most remarkable features of African history. His agents have spread themselves through the whole of North-eastern Africa, and the influence of the Senoussiya as a religious confederacy is felt from Morocco to Syria and from Tripoli to Zanzibar. Before the outbreak of Mahdism all the tribes of the Soudan who were not idolaters were Senoussiya, and nowhere had the new religion been more warmly and generally accepted than in Darfour, Wadai, and the neighbouring States which border upon Lake Chad.

At the time of the foundation of the sect circumstances contributed to throw political as well as religious power into the hands of the great Sheikh, and in Tripoli, where he seems to have allied himself with the forces of Government, the power of the Senoussiya was recognised as a valuable assistance by the Turks. It is said that the administration of the province is carried on almost entirely by agents of Senoussi's choice. Since the death of the first Sheikh, his son, who has taken up his residence in the oasis of Simah—the classic Jupiter Ammon—professes to absorb himself entirely in religious contemplation, and to take no part or interest in political questions. Pope of the Western Soudan, he is picturesquely described as receiving with veiled face the pilgrims who make their way to his capital, exhorting his devotees to austerity and purity of life, to charity towards their neighbours, and endurance of the sorrows and sufferings of life. He has taught them to look forward to a time when the Messenger of God shall appear and come forward to combat the evil by which the world is oppressed; but in the meantime, both by spirit and letter, he has counselled abstention from mixing themselves in worldly struggles. His influence is so great that attempts have, of course, constantly been made by political leaders to win his sympathies for their enterprises. To all he has returned the same answer, that his business is with the souls of his people, and not with their material well-being. The signature which he attaches to his letters is "Senoussi el Mahdi," and the confident expectation of his followers is that some day he will cast away the veil from his face and come forward himself to occupy the place of their Messiah.

If it be true that this man has consented to leave his retirement and has placed himself at the head of an army for the avowed purpose of conquering the Soudan, there can be little doubt that the reign of the Mahdi is at an end, and an altogether new chapter of history has opened on the Nile. He is perhaps the only man in Africa who has the power to do what the letter attributed to him declares that he intends to do ; but for Egypt the interesting question will naturally arise, whether, when he has carried out the first part of the programme and restored the Soudan to peace and order, he will still have the inclination, or even, it may be, the power, of restoring it also to the government of the Khedive. At present the general opinion here among the well-informed is, that he is not in person at El Obeid ; but there is a strong inclination to give credence to the report that a rising organised by his agents and countenanced by his authority has taken place, and may lead to new and altogether unexpected developments of the Soudan question.

Mr. C. GRINDLEY then read a paper on "The Caves of Adelsberg," from the *Field* of December 29.

THE GREAT CAVE OF ADELSBERG.

ADELSBERG may be reached from Trieste in about three hours by an ordinary train. By rail it is fifty-two miles away, though in a direct line, over the stony hills and mountains, the distance is only about half as much. The cave of Adelsberg is so notorious a wonder—at least, in the Austrian empire—that cheap tickets to the town of Adelsberg are issued from the neighbouring larger towns, in winter and summer alike.

I left Trieste on April 7 by an early train for Adelsberg. The weather was iniquitous. Never have I felt or beheld (in its effects) so fierce an infliction as the "bora," or north-easter, which on this April day rushed and roared from the Pole, by way of the Carpathians, and was channelled upon the railroad by the hills on either side of us. It had sprinkled us in Trieste with snow in the night. Thanks to it, the fair Adriatic was black and lowering to the horizon. The vineyards on the maritime slopes and the blossoming fruit trees looked grievously out of place in the teeth of it ; and every traveller was cursing or groaning at the phenomenon, which howled outside the cars like a kennel of demons, fought against the train so as to moderate its pace—officially moderate enough, in all conscience—and set us all shivering at each other for company.

It is said that this "bora" is at times strong enough to overturn the cars of a train. I can quite believe it. One could certainly be much amused to see how it bundled guards, porters, and passengers down the stations which it enfiladed, and with not one thought for their feelings or their dignity.

The country is singularly stony. For miles one looks upon a rugged plateau of granitic or limestone cobbles, amid which the naked substratum of rock also contrives to protrude itself in forbidding pinnacles and knobs. This is especially remarkable by Nabresina, the junction whence we turn inland. From this point the rise is incessant. Trieste is on the sea level ; Adelsberg is 1,800ft. above the sea. We pass from one upland basin to another, with mountains on both sides, high but not impressive, and with a few red-roofed villages among the mountains.

But in one particular the land is exceptionally blessed. It abounds in grottoes and subterranean passages. These homes of the jins culminate in the Adelsberg Cave. But many of the caves fall little short of the Adelsberg. They are less civilised, they are not under the indefatigable administration of a cavern committee, and they are not lit by electricity and pervaded by excellent highways, laid with tram-lines, &c. This is the essential difference. The average tourist prefers to take his subterranean pleasure pleasurably. Among the caverns of Divaca, the Reka, and

others, between Nabresina and Adelsberg, he may prowl, with a lantern or two, for a day or a week, risking his life at every step, and not able to appreciate a tithe of their graces ; whereas at Adelsberg art helps nature with a will.

Adelsberg is a pretty townlet of some two hundred stout houses and two thousand souls. The "bora" very adequately explains why the buildings are so thick-walled, and why double windows are the fashion. A large proportion of its people are Slavs. The inscriptions over the shop doors are in Slav, or else of the pictorial kind (a coffee pot and rolls, or a sectioned lemon, betokening places of refreshment) understood by all the world.

Though so elevated, Adelsberg is surrounded by burly limestone hills. These obligingly open, however, to the "bora," or the "bora" has compelled them. Thus the wind on this April day blew an Arctic hurricane in the upland basin of Adelsberg, whistling round it as if feigning to be wrathful because it could not find the way out by which it had come in ; and, thanks to it, dark clouds hung over the hill tops, magnifying their height, save where a lurid glow broke over one peak to the south.

A basin of soup at the Crown Inn now introduced me to a couple of excellent Vienna tourists, who had been drawn to Adelsberg, like myself, by the cavern. They were man and wife, familiar with the Slav tongue, and amused by my indefinite manner of speech. For them at first the "bora" was a deterrent to all pleasure-seeking ; but with a genial good nature, that I still must thank them for, they offered to accompany me, that I might not have upon my shoulders the exclusive burden of the cost of lighting the cavern. Orders were therefore issued for the illumination, according to tariff, and we awaited the summons.

At two o'clock the cavern guide presented himself, and said that all was in readiness. The servants of the administration had for the last two hours been busy setting the lights for us throughout the length and breadth of the cave. It was but a quarter of an hour's walk from the inn to the cavern portico. On the way we passed the old castle, "The Eagle's Perch," (Arisperch : Arensperch, as it was called before the name hardened to Adelsberg), nearly 400ft. higher than the town, and set boldly upon a spur of the mountain mass whose interior we were going to investigate. We also came to the river Poik, which ran with a full stream of pale blue snow water in the valley. This river is one of the finest constituents in the general panorama of the cave. It lends the one feature without which underground scenery can hardly become sublime.

A few formalities have to be gone through at the entrance to the cave. Without formality a German association of any kind is incomplete. Therefore it is one of the laws of the Adelsberg administration that every visitor inscribes his name in a book before he begins the visit. By this means the crafty Croats seek to obtain exalted titles to add to the list of "high and mighty personages who have honoured the cavern with their presence." Among the current list of such European dignitaries it is singular to note that no English prince or princess of the blood has ever been here.

The first part of the cave is not remarkable. It is a well-executed tunnel in the hill, with a level path—nothing more ; but soon it widens, the noise of rushing water increases, and then a turn in the tunnel brings a magnificent spectacle before us.

This is the Cathedral Grotto, or Neptune's Cave—a chamber 72ft. high, and about 160ft. wide. Where we enter it we are near its vaulting. We therefore look down on the white foam-flecked river, spanned by a couple of bridges, and upon the hundreds of lights which line the staircase leading to the bridges and the further roadway. In the words of the local author, "it is truly a piece of fairyland out of the 'One Thousand and One Nights.'" Here began, in our case, that infinite stream of adjectival utterance, which for the next two hours poured forth unceasingly :

“Wunderschön !” “Sehr schön !” “Sehr romantisch !” “Sehr hübsche !” and the like.

In earlier times the adventurous traveller who, with quaking breast, had got thus far in the cavern, was wont to be satisfied with the Cathedral Grotto. Having viewed it, and perhaps descended to the water, he retraced his steps, and recorded his wonderful experiences in his diary. Nowadays it is vastly different. Instead of being able to go but a couple of hundred yards into the mountain, we can now, thanks to engineers and masons, go a couple of miles. The very river is spanned by a strong iron bridge, able to resist the spates, which, with the melting of the winter snows, were wont to flood the old natural bridge. And in the summer, when Austrians come hither by hundreds a week, electric light guides their footsteps down the shiny stairs, even as if they were in an imperial palace.

In this superb grotto one has little opportunity of judging of stalactites in detail—the entire *mise en scène* fascinates too profoundly ; but having descended to the river and crossed it, we turned into a narrow gallery, where, in the words of the local author, once more we learn how “nature’s whims put all painters to the blush.” Her whims are here all of the staglamitic kind. It were endless to recapitulate the names of the freaks of formation, which our guides solemnly enumerated one by one, as guides will. One of the most beautiful of the earlier formations is the Red Waterfall, formed of inclined layers of a pinkish material, which fairly dazzles the eye by its lustre, under the radiance of many lights. The “Name Hall,” or “Place of Initials,” must also be mentioned in this older part of the cave. Here are myriads of sign manuals, dating from the thirteenth century. The student of the initial craze will find valuable evidence of its antiquity in this part of Adelsberg Grotto.

We now leave the precincts of the Cathedral for the second part of the cave—the Emperor Ferdinand’s Grotto. This vast grotto, more than half a mile long, and diversified by various expansions and involutions, was discovered in 1818. In 1819 the Emperor Ferdinand I. (then Crown Prince) visited it : hence its name. Let me briefly enumerate some of its wonders. First, it is pervaded by a tramway, so that delicate ladies may, for an extra florin, see all its beauties at their ease. The most gorgeous stalactites stand in colonnades on both sides of the passage. Here is the Diamond Mine, a glittering rock worthy of Golconda ; the Baconrind, an excrescence, the darker material of which explains its name ; the Butcher’s Shop, where stalactites hang like joints of various shapes and sizes ; another waterfall, in which the tints are white and grey ; the Elephant’s Head, a huge thing ; the Font, the Crinoline, the Sarcophagus ; the Opera Box, a rare piece of natural masonry ; the Tassel, wrought with the delicacy of an upholsterer, and many another.

Some of the columns are ten and twelve feet high, and of immense girth. The mind is perplexed by the rule-of-three sums, which are, of course, the outcome of thought upon such works of nature. It takes, they say, ten years of time to make material no thicker than a sheet of paper : two thousand years to build a yard. One is sent floundering into infinity in the effort to calculate the ages necessary to raise such stalactites as these, so tall and of so great a girth.

Nearly midway in the Ferdinand Grotto is the famous ballroom, a chamber about 160ft. long, 90ft. wide, and 45ft. high. Here, every Whit-Monday, a ball of repute takes place. People come from Vienna to attend it. Five thousand dancers sometimes then make the cave echo with their voices. Candles and electricity and the gorgeous glow of Nature’s tapestry must make up a scene of witchery hardly to be matched on this earth. There is a dais for the band, a well of sweet water as part of the “buffet,” and a very smooth prepared surface for the dancers. The tramway traverses the Ball-room, but this is only one more unconventional feature in an unconventional place.

After leaving the Ballroom we pass fresh phenomena ere the Ferdinand Grotto ends—the Handkerchief, the Leaning Tower of Pisa, the Wax Candle, the Turtle, the Fish Net, the Moonshine Cave, a recess through the dainty walls of which the outer light from the Candles and lamps filtrates with a softened glow; the Wax Room, the Cypress, the Egyptian Mummy, &c.

We have walked nearly a mile by the time the Ferdinand Cave gives place to the third large chamber—the Francis Joseph and Elizabeth Grotto. The stalactites are here more ruddy. The road also is narrow. Indeed, after going about seventy yards one comes to a palpable piece of excavation. In the year 1856 a tunnel some twelve and a half yards long was made to open out further wondrous—with brilliant success.

Among the treasures of this chamber are the Laundry, a place hung with snow-white drapery about a third of an inch thick; the Crocodile; the Sleeping Maiden; and the Sword of Damocles, a fine suspended stalactite, which in a thousand years or so will have outgrown its present name. The rose and white and dark brown formations here lend themselves admirably to pictorial purposes. This grotto is in all about 650ft. long, with a very diverse breadth and height. It ends with the Belvedere, a very spacious chamber, about 100ft. high, and with an irregular surface, so that lights may be dispersed about it very effectively. Here, in 1857, the Emperor Francis Joseph and the Empress Elizabeth consecrated the latest discoveries of Adelsberg. A black marble pyramid in the middle of the Belvedere commemorates their visit, and also a second visit of the Emperor twenty-six years later, in 1883.

From the Belvedere an offshoot grotto that is not thoroughly explored leads on the left hand to the bed of the Poik once more. The gloomy, and indeed fearsome, nature of this apartment is well indicated by its name—Hell. The riot of the river is heard, not seen, though the base of the cave is deep in water, which has, no doubt, come from the stream by lesion in the walls which divide it from the actual water-course.

It is better, then, to have little to do with Tartarus, and proceed direct to the most gorgeous of all the show apartments of Adelsberg. This is known as the Mount Calvary Grotto, and is the highest and the extreme point of the cave at present. Where we enter the main cave and cross the river we are 122ft. lower than the town of Adelsberg, but the summit of Calvary is 62ft. higher than Adelsberg, so that the climb upwards to Calvary is nearly 200ft.

I hope I may never lose the impression made upon my mind by this really exquisite subterranean freak. Imagine an oblong room about 600ft. in circumference, and 172ft. from its lowest part to the irregular ceiling of it. Imagine also a great pile of rock rising in the middle, somewhat on one side of the room, 120ft. of the 172ft. towards the vaulting. Cover this semi-insulated mass with a myriad of stalagmite columns like the ruins of an old city of the Pharaohs, and a multitude of other fanciful representations. Amid this gracious *débris* compose a crucifixion scene. Disperse lights here and there, enough to satisfy the sense of vision and fire the imagination, and then make what you may of a very memorable picture. Our shadows (magnified a hundred times) swung hither and thither about the dim, rough roof high over our heads. There was no sound save the echo of our voices in perpetual apostrophising. Thus we slowly clambered to Calvary by a road as steep as that which leads to the Parthenon—indeed, the illusion of sweet ruin and the tender radiance on the elevated columns put me in mind of Athena's temple, though the dome of blackness and strange shadows was certainly dissimilar from the pellucid blue of a Grecian sky.

The ascent to Calvary is made by a zigzag cut in the limestone, and protected by railings. On the way a few eccentric developments are noticeable. For example, the Dove and the Parrot on the left hand, near the summit. Lower down the Tent is

noteworthy, and the Curtain, though this Curtain is far surpassed by one we shall see a few minutes later.

I must not forget the colour of the Calvary monuments. The formations are not only of the most dazzling white, encrusted with laminae which glitter like innumerable diamonds, but are also yellow, red, brown, smoky, orange, and sepia. Among them is Noah's Ark, which has been turned to account as a visitors' book. Its sides are scored with names, nor have "exalted personages" forborne to desecrate the place as vigorously as their inferiors. A Duchess of Parma, *inter alia*, has commissioned her guide, companion, or friend to thus enrol her with the other Vandals.

Milan Cathedral is another incident in the beauties of Calvary. It is easy to fancy how the airy white pinnacles of this great building lend themselves to the genii of the cave for reproduction. The whole of Calvary, and the part of the cave from the Belvedere, dates but from 1865, and is christened after the Empress Maria Anna.

This is, in one direction, the extremity of Adelsberg's Grotto as far as it is made accessible; but it is not necessary to retrace our steps, as a loop leads us to the Grand Duke John's Cave and the tram line, whence we regain the Emperor Ferdinand's Grotto and the entrance.

In this neighbourhood our palling energies are revived by new marvels. We see the biggest stalactite in the cave, a stout column 31ft. high, and contemporary with Adam at the very lowest computation. There is also the Gothic Hall, a name which sounds its own trumpet; but most alluring of all, and a sight to hold one speechless for a moment, is the Curtain. This is a semi-detached stalactite, thrust from the wall, so that a candle may be held behind it. The dimensions are 9ft. by 3ft., with the thickness of but one-third of an inch. Nothing can exceed the refinement of Nature's colouring of this Curtain. The tones of clear red, brown, and white are so delicately blended, and the illusion is so very thorough, that one involuntarily sighs for so engaging a piece of tapestry, and bethinks one which room it would best adorn. My good friends the Viennese here quite exhausted their adjectives of admiration. The most extreme superlative of praise fell from their lips again and again, and thenceforward, until we saw the flash of lights in the river, and then the chill daylight outside, they were nearly silent.

Altogether we were underground, or rather under mountain, about three hours. As the author I have already twice quoted remarks, "The only defect of the cave is its size, which tends to produce fatigue." One might as reasonably say, "The only defect of a pretty woman is her beauty." But certainly we were rather tired, and not very much disposed to loiter once again in the "bora" to inspect the mineralogical trifles which some hardy little boys of Adelsberg offered for sale in the open. The cavern, though damp and cool (about 48° Fahr. uniformly summer and winter), was agreeable in comparison to the "bora," with its degree or two of frost and its unbounded impetuosity. And so we all made haste to the Crown, where we dined in Slav fashion, and whence by-and-by I hurried through the gale to the railway station in time to catch the Vienna mail for Trieste.

Let me add, for the information of tourists who find themselves in the vicinity of Adelsberg, that from May to October the cavern is daily lit by electricity, when the charge for admission is 5fr. (2½ florins) each. At other times visitors must give notice of their impending visit to their Respectabilities the Cavern Authorities, who will then light candles in proportion to the sum to be expended. For 160 candles (too few, by far), the charge for one person is 4 florins, and for three persons 6 florins; for 1,800 candles, one person must pay 21 florins, and three persons 23 florins. But of all the seasons of the year, Whit-Monday is the best for Adelsberg; it is to the cavern as Holy Week is to Rome.

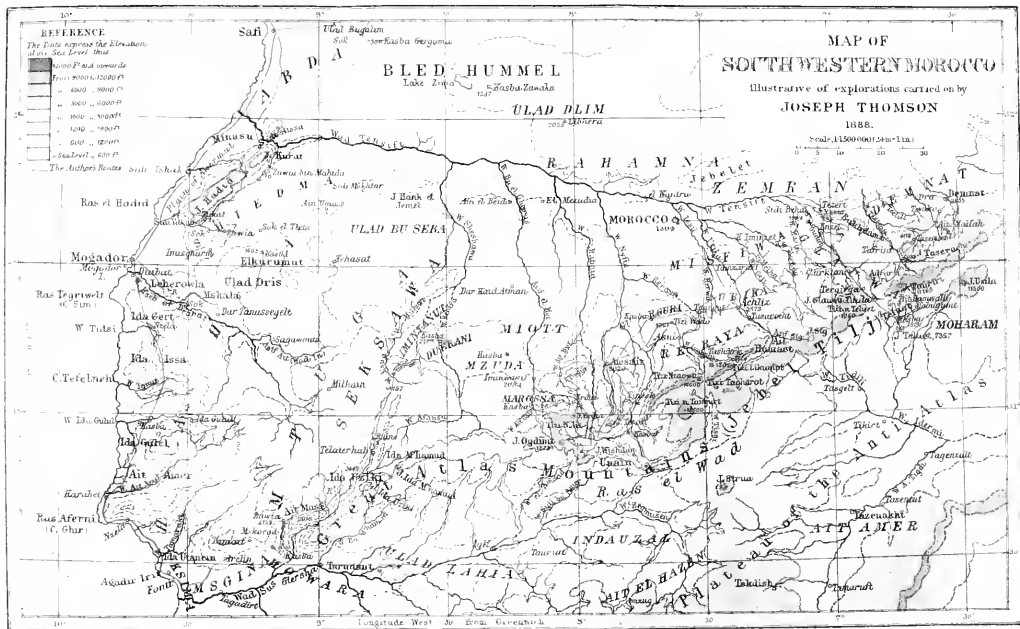
Whether justly or not, Adelsberg claims for its cave that it is not excelled in size by any except one in North Hungary and the Mammoth Cave of Kentucky. For its beauty it claims to be pre-eminent, nor will it be the fault of the engineers and the administration in general if, in time, they cannot enlarge the cave to the size even of the prodigious American burrow.

Messrs. Theodore Gregory, F.C.A., and J. G. Blake were elected as the Auditors of the Society.

Letters from the Rev. W. C. Porter, M.A., Newala, on "East Africa," and the Rev. Mr. Mackay, Central Africa, were read and considered. (See letter, p. 76.)

A vote of thanks to the writers and to the readers of the papers, and to the chairman, closed the proceedings.

Father Damien.—In the Pacific Ocean, about midway between America and Australia, the traveller comes to the Hawaiian Islands, which were discovered by Captain Cook one hundred and twenty years ago. These islands are places of exquisite beauty. One of these islands had been chosen by the Hawaiian Government as a leprous settlement. Into this land of lepers there came, in 1873, a man, named Joseph Damien de Venster. He had heard of the loneliness and abandonment of the lepers, and his great heart filled with compassion, and his mind filled with determination to go to them, and spend, and be spent, in doing them good. He knew how great was his risk. Joseph Damien was born at Louvain, in Belgium, in 1841. His parents were good people, Roman Catholics, and taught their son to serve God; so that it is no wonder we hear of him often wishing he might become a priest. His brother was already studying and preparing for that office. On Joseph's nineteenth birthday his father took him to visit this brother, and, having business to transact in a neighbouring town, left the brothers together. Joseph saw his opportunity, so when his father called for him to return home, he declared his intention of remaining to prepare for the priesthood; and sending his love to those at home, explained that it would save them the pain of saying good-bye, if he entered upon his studies at once. Both brothers seem to have been bent on going out as missionaries, and the elder had just received his appointment to the South Sea Islands, when a serious attack of fever prostrated him. Young Joseph, although he had not gone through the complete set of studies, at once broke the rules of the college, by writing to the authorities for permission to take his brother's appointment, without showing his letter to his superior. The superior, when he received notice from the authorities accepting Joseph, playfully scolded him for breaking the rules, and ended by telling him to take his brother's place as missionary. Joseph was so overjoyed that he did not know what to do to relieve his excitement; and it was only after he had run round and round the courtyard, and stood on his head several times, that he became calm. At last he was off to the South Seas, and while at work there, he heard of the sad state of this leper settlement. The more he heard, and the more he thought of them, so much the more did he long to go to them. At last permission was granted, and he set off for Molokai. Stepping ashore there, with a noble determination never to leave them, but to do, and, if needs be, to die for them, he said to himself: "Now, Joseph, my boy, here is your life's work." His strong will and cheerful spirit soon began to set the place in order. He, with his own hands, helped to build substantial clean huts for the people, erected a hospital, a church, and made them a guest-house, for every now and again a boat would land on their shores the friends, the wives, husbands, or children of the lepers, who came as visitors. Nursing the sick, comforting the dying, teaching, feeding, and clothing them, restoring order, giving cleanliness and comfort, bringing, from a lake he discovered, a supply of ice-cold water to the settlement, so Father Damien's time passed by. But one day the visiting doctor, after examining him at his own request, confirmed his suspicions by saying: "I cannot bear to tell you, but you, too, are a leper." Yet he was not distressed, but seemed to crowd more work than ever into his life. At last, in April of this year, the end came. Father Damien, the good leper hero, quietly died, and was buried under the same tree which first gave him shelter when he began this noble work at Molokai. Father Damien was always hopeful that a cure for leprosy would be discovered. Let us hope this may be the case. As a memorial to the noble-hearted priest, a sum of money is to be set apart that the disease may be well studied by medical men, with the hope of finding a cure.—*Sunday School Hive.*



THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

SOME IMPRESSIONS OF MOROCCO AND THE MOORS.—(*See Map and Illustrations*).

By Mr. JOSEPH THOMSON, F.R.G.S.

[Addressed to the Members, in the Memorial Hall, April 9th, 1889.]

AT midday on the 17th of March, 1888, we were still in Gibraltar, still on the threshold of Europe. We were wandering through streets and lanes whose English names seemed as much out of place as did the blue-costumed policemen and red-coated soldiers among the swarthy Gibraltarians and black-eyed Spanish girls. At every step we could not but be aware that we were still under the British flag.

On the evening of the same day we were landed on the shores of Africa—not, however, Africa as I had known it elsewhere, black, barbarous, and breechless, but Africa with an Oriental glamour and gilding in which the Negro and the European alike seemed extraneous elements. We passed up narrow, tortuous lanes, formed by whitewashed buildings of meanest aspect. Here we met grave and portly Moors. Dignity and ease were in their step, and a holy assurance of heaven in their countenance. Their haiks, toga-like, embraced their ample persons in creamy folds, and with an artistic and truly classic grace, and their ample turbans formed appropriate head-gear, overshadowing their tanned and bearded faces. Here, too, we saw women, veiled from head to foot, waddling along like animated bundles of clothes, but withal carrying something of the mystery and glamour of the unseen about them.

For anything we saw around us, we might have been transported to the other side of the globe instead of across a few miles of sea, so complete and abrupt was the transition from the sights and scenes in the morning.

In the days which succeeded, we saw much to instruct and delight us, but nothing excited our wonderment more than the completeness of the unseen barrier which cuts off the Moor from all other people.

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Here we have a town almost in touch with Europe, and within earshot of the morning guns of a British garrison town, inhabited by a people of no small intelligence, and who daily come in contact with Europeans, politically, commercially, even, to a certain extent, socially, and who yet are absolutely unaffected by the influences more or less directly brought to bear upon them. Nowhere can one see the slightest evidence that the Moor's dress, his manners or customs, his ideas, religious or secular, or any other aspect of his life, have been modified in the slightest degree. He seems to say to the European, "Your ways are not my ways, nor your God my God. Yours may be the riches and the influence in this world, but ours will be the power and the glory hereafter." So complete, in fact, is the isolation, that the Moor might be an inhabitant of another planet, whose mental and physical constitution rendered it impossible to be influenced by extraneous agents.

These first feelings of wonderment, which took possession of us almost from the day we landed at Tangier, only deepened and intensified with the further and wider knowledge of the months which followed. Everywhere we were confronted with problems, social, political, and religious, which completely overshadowed, in point of interest, the geographical work we had in view.

That work was the exploration of the Atlas Mountains. (See Appendix.)

For centuries Morocco had been more or less the scene of European warlike or commercial enterprise. The Romans had held sway over a considerable area in the north. In later years the Portuguese had laid an iron hand upon its western littoral, and there left striking monuments of their former greatness and commercial vigour. The British, too, had had a footing in the north, and our national flag had waved over Tangier. Nor had the Spaniards been without a finger in the pie—a finger which they mean to retain there pending the hour when they shall endeavour to push in the whole hand and arm, and, grasping hold of the inheritance of the Moor, wipe out the disgrace of the Moorish domination in Spain, the memory of which still rankles deep in their hearts.

In spite, however, of all these conquests and settlements, as well as of the more widely-spread ramifications of commercial enterprise, not to speak of the insatiable curiosity of the more or less scientific traveller, Morocco, though at the very threshold of Europe, has remained the least explored of countries. Till this day, large areas in the very heart of the empire remain as completely unknown as the most out-of-the-way corners of Central Africa.

Religious fanaticism has had much to do with the continuance of this remarkable state of things; but a not unimportant factor

also has been the growing fear of the despised Christian. The Moors know too well that several European nations only await their opportunity to pounce down upon them. To evade this disastrous result their sole policy is passive resistance and complete isolation. Every traveller is to them not only a hateful individual, but a spy, studying the fertility of their land, and their mineral riches. To the government he also appears as a source of direct danger—for he may be killed in a sudden fanatical outbreak, and bring down on Morocco the vengeance of his country.

To penetrate this barrier of religious fanaticism, hatred, fear, and official obstruction, to strike away from the oft-traversed tourist routes, and penetrate the unknown provinces, but more especially to explore the little-known and reputedly-dangerous Atlas Mountains was the congenial task I had set myself.

In what I have to say I do not propose detailing to you how far we were successful in this geographical enterprise. I shall rather ask you to follow me from place to place, only so far as it may serve to carry us along, having ourselves full liberty to stop by the wayside, and take note of the more generally interesting problems already alluded to, which present themselves to the observant traveller.

Accompanied by a young friend, Mr. H. Crichton-Browne, I left Tangier on the 5th of April, by steamer, *en route* for Mogador.

At Casablanca we landed, and continued our way overland, accompanied only by one servant and a soldier guide.

Let me describe to you the sights and scenes which characterise a typical day's march over a greater part of central Morocco.

Leaving Casablanca, we enter a breezy and grassy expanse, which stretches away southward in undulating, treeless, monotony—a few herds and flocks grazing to right and left, and a varied succession of country people on donkeys, or trudging along, whilst camels alone attract our attention. Gradually the plain rises into a palmetto-clad and boulder-strewn ridge, from the top of which we take our last view of Casablanca. Turning to the south, we see little promise of an interesting ride. As far as the eye can reach the country spreads itself out in low grassy undulations, unrelieved by rock or tree, by hill or valley. The sole conspicuous objects are the glaring whitewashed tombs of saints, called kubas. There is not village or hamlet to give an inhabited air to the scene, though, here and there, low black patches and the curl of faint blue smoke show where nomadic Arabs have pitched their tents. At places, too, the rich dark loam is being turned over by primitive wooden plough, drawn by an ox and ass, or by mangy horses, guided by bare-legged and shirt-clad labourers. Further off, shepherds tend their flocks,

not uncommonly beguiling the time with such simple harmony as they can draw from reed-made pipes.

But what chiefly attracts the attention is the floral display which presents itself to our delighted gaze. The whole country seems a glorious, natural flower garden. Nowhere, in field or conservatory, can anything more rich or profuse, and withal so extensive, be seen as the exhibition of flowers on these fertile undulating plains in spring. Poppy, marguerite, and marigold, and fifty other familiar and unfamiliar flowers, vie in glory of bloom, producing exquisite kaleidoscopic combinations of rich colours on the greensward. Acres of bright yellow marigold contrast with the crimson-flushed poppy. More commonly they are intermingled and sprinkled with the added hues of white, and pink, and blue, revealing in their gorgeous and striking combinations the sources from which the Moorish artist in wool derives the ideas expressed in his brilliantly-coloured carpets. Through miles of this exquisite flower-land we jog along, finding continually some new species or fresh touch of colour to notice in some tract apparently more richly covered than anything we had yet seen. The Arab tents which appear here and there look Arcadian and ideal in the extreme, with their frisking goats, playing children, and barking dogs. Afterwards we discovered that other things skip and swarm about these besides goats and children, and that the Arcadian life of the owners is no more than seeming, for a more oppressed and miserable race does not exist.

At midday we halt to rest and lunch. We have no need to spread our carpets, for a more beautiful one is already laid. On this we throw ourselves, to be almost hidden among nodding marguerites and marigolds, while the air is filled with the fragrance we crush out of the flowers we lie upon.

A little later on we resume our march, and ramble cheerfully and rapidly along the footpath that serves as road, and which winds and curves through a more bush-clad country, where the friendly rivalry of arbutus, myrtle, and flowers only serves to enhance each other's beauties. Towards evening we leave behind the almost uninhabited grazing grounds and bush tracts, and enter a well-cultivated district, rich with fine crops of fast-ripening barley. Whitewashed houses, not unlike Irish cabins, though more clean and comfortable-looking, stand here and there among the fertile fields. On our left rises the extensive ruins of a kesbah or castle of a former kaid or governor, who, being suspected of having laid up treasures on earth, had been cast into prison till he had disgorged his wealth to the Sultan, his castle being meanwhile demolished in search of hidden money.

Towards sunset our soldier leaves the main track, and guides us to a plain quadrangular group of buildings, which,

he informs us, is the fundak or Government caravansarai. The very name caravansarai is sufficient to fire our imaginations and hurry us faster along. A look inside is sufficient to dispel all these pleasing illusions. An ordinary farm dunghill would be simply heavenly to the cesspool we are asked to pitch our tent in. After a stormy scene with our escort, who insists that we must stay inside or else we shall be murdered, we get our own way, and, passing a little further on, we pitch our tiny tent near a duar or tent village of some Arabs.

For a time, after being refreshed outwardly and inwardly, we sit and talk. We commiserate our less fortunate friends at home, who are compelled to go through the same round of monotonous, uninteresting duties, knowing nothing of the romance and the delights of camp life in Morocco. At length, tired with our fifty-miles' ride, we wrap ourselves in our ulsters and stretch ourselves out, a change of clothes for pillows.

At length Morpheus coquettes with us, and spreads the allurements of semi-unconsciousness over our senses; but just as we seem to be on the point of sinking into sweet and blissful slumber, we are, time after time, ruthlessly hauled back to hated wakefulness. Scores of dogs from our own and the neighbouring duars, attracted by the rich scents which emanate from our stewpan, gather in hostile and hungry bands around our tents. Having conflicting interests and deeply-rooted hates they ever and anon set upon each other with savage yells and howls, making night truly hideous. Their wild, hyena-like clamour rises and falls, comes and goes, in the most exasperating manner. Now and then, amid the fearful din, the strident voice of El Hadj Hamad, the servant, can be heard hurling fearful expletives at the worrying pests. Sometimes he throws stones, and, if I mistake not, the cooking utensils, when, attracted beyond prudence, they venture too near his belongings.

The dogs unfortunately are not the only element of riot and disorder. Our horses, picketed close to our tent, after a little rest, develop decidedly combative feelings, and manifest an irritating desire to get within fighting distance. Neither ropes nor hoblets are sufficient to restrain their ungovernable impulses, and more than once they break loose and rush at each other with fierce screams, kicking and biting furiously, to the imminent danger of our tents and persons. Then is heard the full vituperative power of the Arabic language as we run to separate the infuriated brutes; then disappears the cold chicken-bone in the ravenous jaws of a wretched dog; and then we discover that our Moorish travelling has its drawback, and that life at home has at least some advantages. For over four marches we continue through country such as I have described, touching at the

interesting coast towns of Azamor, Mazagan, and Saffi. For nearly 150 miles we do not see a single tree worthy of the name, nor do we cross a stream with the exception of the Azamor river, neither did we see a hill. Nowhere are we tempted to halt to admire anything approaching a picturesque landscape. Our route lies over low rounded ridges and more monotonous flat expanses. We passed from areas ablaze with flowers to tracts of bush and palmetto, or we traversed rich plains of black loam covered with splendid crops of grain alternating with fields left waste and desolate.

With our arrival at the Tensift, south of Saffi, all this changes. We here enter the area affected by the uprising of the Atlas Mountains. The gentle undulations of the central provinces break into picturesque irregularities of hill and dale, producing a refreshing variety of surface features, making our route less easy but infinitely more interesting. The country also is no longer treeless, for everywhere the remarkable oil-bearing argan tree enhances, by its dark green foliage and gnarled branches, the varied features of the landscape. To this district the small isolated range of Jebel Hadid, or the Iron Mountains, gives an air of dignity.

A less agreeable feature in the province of Shiedma, and more or less characteristic of all the southern provinces of the empire, is the nature of the soil. The rich loamy plains of Shawia, Abda, and Dukalla, here become for the most part stone-strewn sterile tracts, due to a crust formed by the cementing of the calcareous particles which compose the major part of the surface soil. This singular crust presents an adamantine surface to the husbandman, and practically seals up the ground, making agriculture an arduous and but scantily repaid labour. Much of it, crust bound and largely clad with thorns and acacias, defies the efforts of the labourer to wrest even the barest necessities of life from its barren bosom.

With our arrival at Mogador on the 17th of April commenced the preparations for our hazardous expedition to the Atlas. As travelling in Morocco was a new experience to me, and the Moorish character an unknown quantity, I judged it best not to plunge straight into the interior until I had satisfied myself to some extent on these points. For this purpose we determined to return to Saffee by a circuitous route through Shiedma.

It was well that we did so, for the few days devoted to the trip revealed such a state of things among our men that we were almost reduced to the verge of despair. Their laziness, insolence, gluttony, and deceit were quite a revelation to us, and we speedily saw that the first essential to our successful progress was the settlement of the question, who was the master? Our troubles were greatly intensified by the fact that not

knowing the language ourselves we were dependant, in our communications with the natives, upon one of our servants, who afterwards proved to be the greatest scoundrel in our party. After a most unpleasant struggle, and later on the engagement of a Jew interpreter on whom we could rely, we succeeded in asserting our position, but from first to last our own men were our worst enemies, whilst their laziness, intractable character, and persistent treachery, not only poisoned all the pleasure of our journey, but time after time thwarted and upset our plans when promising most success.

Our tour through Shiedma to Saffi calls for no detailed description, and we may pass over it in silence. On May 22nd we finally left the coast *en route* for the city of Morocco. Our way lay through the fertile treeless province of Abda, Bled Hummel, and Rahamna. Of the geographical features of these parts I shall not speak. Of more general interest are certain of the topics suggested to the mind of the traveller. Everywhere we are called upon to remark the wonderful fertility of these great plains and to speculate on the population they might feed if—if only the rainfall could be depended on, and the country enjoyed a certain measure of good government. In that if, however, lies the whole question. The rainfall cannot be depended on. There are no running streams, and water can only be obtained at very great depth. The result is that drought and consequent famines are continually occurring, and many are the harrowing tales the traveller hears about the deaths and desolation which ensue.

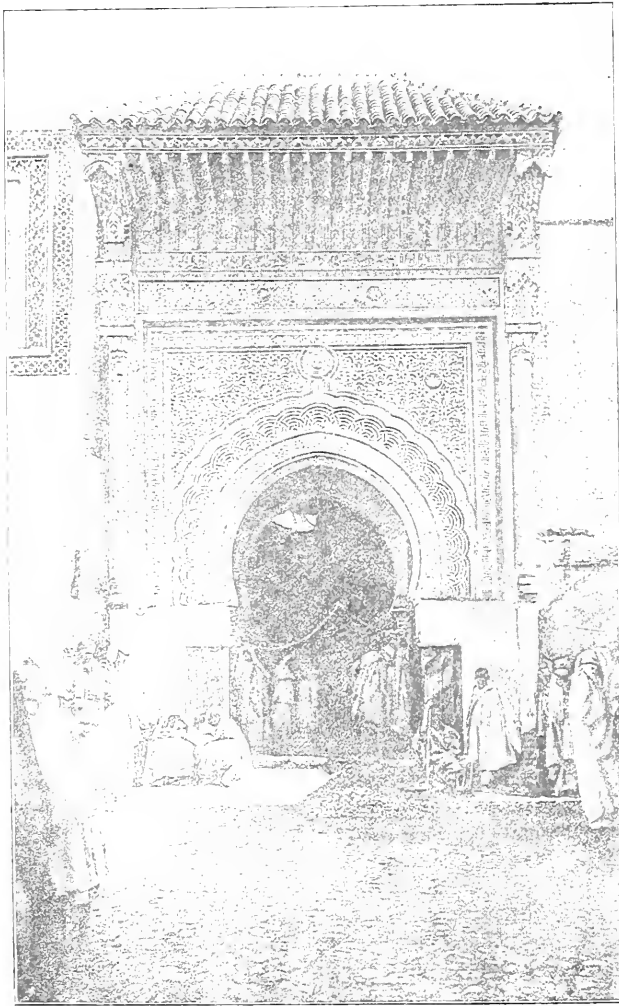
But even more hateful in its influence is the frightful misgovernment of the country. Nothing strikes the stranger more forcibly than the evidences of grinding oppression under which the inhabitants groan. Everywhere he sees signs of spoliation and rapine. The half-starved, weather-beaten countryman, living in squalid huts, which a Central African savage would be ashamed to enter, are but little better than slaves. The two guiding principles of the Moorish Government are that the country and the people exist solely for the good of the Sultan, and that the poverty and disunion of his subjects are his strength. These principles are carried to an almost incredible extent; neither life nor property are safe. The people are ground down to the dust with frightful regular and irregular exaction. The whole country is overrun by human leeches, called kaid, or governors, who suck its very life-blood, till, themselves full to the bursting, they are drained by the insatiable bloodsucker, the Sultan. In the midst of plains teeming with plenty there is little better than starvation even for the very few Arabs who remain on the soil.

The marvellous fact about it all is that few complaints are heard. The inhabitants, with thorough fatalism, consider that

it has been so written, and who, they ask, can avoid God's decree? Only among the original Berber inhabitants is there any rebellion against the state of things which exists. From the earliest time many tribes have maintained an unceasing warfare against the Government, while others, more easily got at, have been conquered from time to time, only to break out again on the first opportunity.

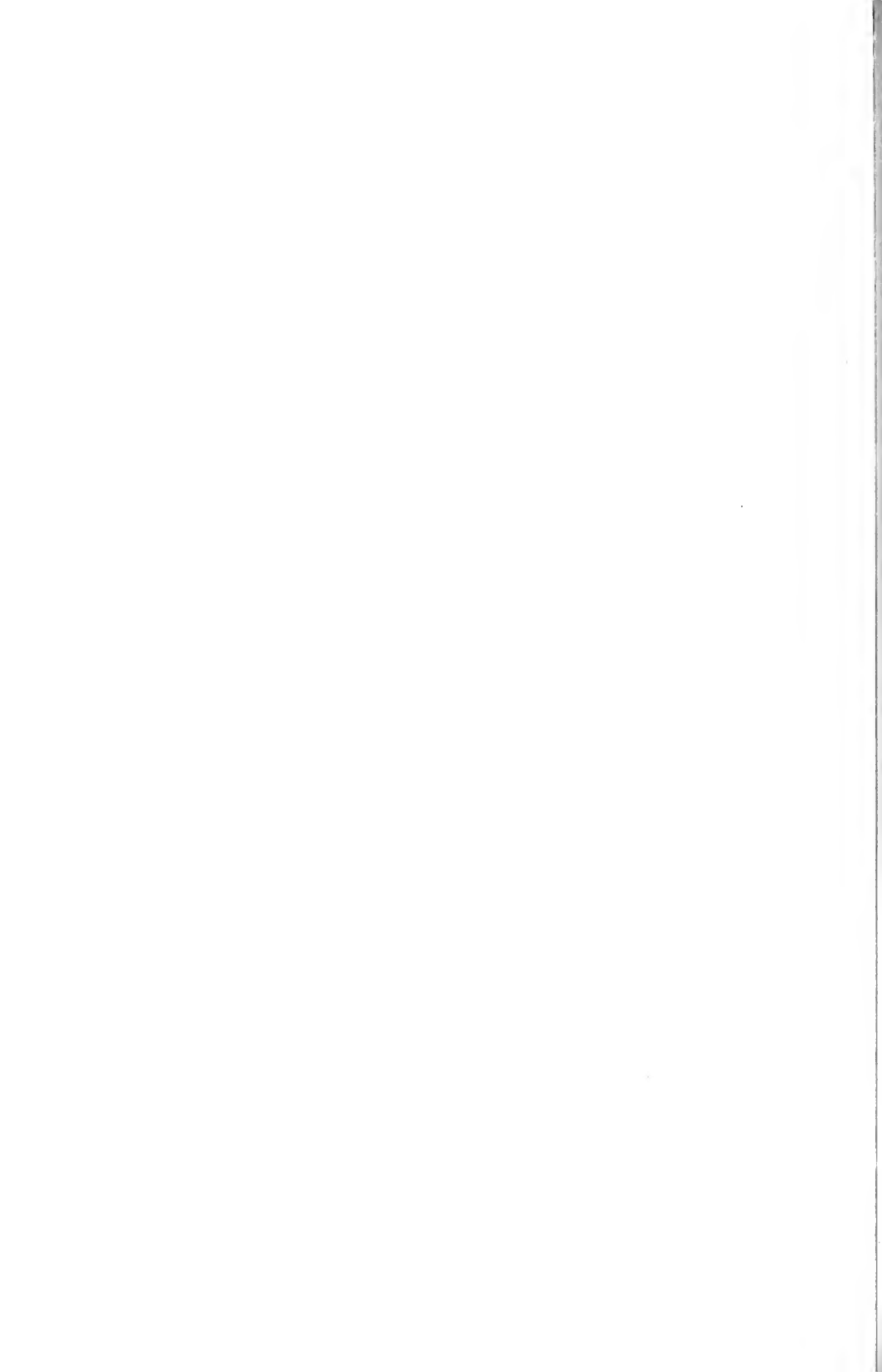
To prevent any such insubordination among the Arabs, the Sultan is careful to keep them plundered of all earthly riches, as much to keep them helpless as to fill his own treasury. For the same reason, he fosters tribal hatreds and sows dissensions, to prevent any united action to resist his exactions. But for the absolute poverty of the people, and from animosities which exist between the tribes and Government, as well as the fatalist doctrines which have such a hold on the Mohammedan mind, the present Government would not last another year.

It is not, however, in a day, or a week, or a month, that any adequate notion is obtained of the terrible system of tyranny which holds the country in its blighting and paralysing clutches. It is so all-embracing, digs so deep down, and spreads in so many unexpected ramifications that the actual condition of things only dawns slowly on the inquirer, and then it seems incredible that such a state of misgovernment can exist for a day. Certainly not throughout the length and breadth of the Dark Continent is there anything to equal its iniquities. Not even among the most savage of Central African tribes is life and property less safe or held of less account than in Morocco. Nowhere is there such a total disregard for all the ordinary rights of man or the commonest rules of justice. For centuries it has been sinking deeper and deeper, crushed down by its frightful load of tyranny and oppression. How long it will last it would be difficult to say, for everything tends to keep up the blighting system. To talk of reforms is to talk to the idle winds. There can be no reform for such a state of things as exists in Morocco but the one drastic one of stamping the vile thing out, as one would stamp out a contagious disease. Morocco must either become absolutely a European province, or be placed, like Tunis, under the protection of a Christian government, sufficiently powerful to compel reforms, not merely to urge them. No number of conferences nor urgent representations of ministers will ever have the slightest effect upon the abuses under which the country is sinking to political perdition. As matters stand at present, the sole business of European ministers at Tangier is to counteract each other's influence, even when that influence is being exercised for the good of the country. Whatever one proposes the others oppose. To such an extent does this shameful spirit prevail that I was advised, on my landing at Tangier, to keep my plans of scientific exploration secret, as it



ENTRANCE TO ONE OF THE BUSINESS QUARTERS, MARRAKSH.

(Reproduction of the original by S.)



was more than probable that some of the ministers of other countries would do what they could at court to get me stopped.

On the 22nd of May we entered Marakah, or city of Morocco. As we passed beneath the battlemented gateway which gives entrance to the city we were full of bright hopes and eager expectations. For were we not entering a city with a history—a city which had been the theatre of wars and sieges and the residence of sultans? Its very name threw a glamour over its yet unknown features, and connected it with all the past glories of the empire.

How different and disappointing was the realisation. As we wandered through street after street, and lane after lane, enclosed by red clay-built walls, we saw much indeed of the “havoc” but little of the “splendour” of the East. Here, as in the open plain, we were confronted at every step with evidence of a nation on a downgrade slide—of a people who had lost all earthly hopes and anticipations, who lived from hand to mouth, patient waiters on God’s Providence. Morocco was a city grown slattern, very much out at the elbows, and utterly careless of its personal appearance.

It was difficult to believe that the Moors around us were the lineal descendants of the men who, with their irresistible war cry of “None but the one God,” had swept across the north of Africa, and, pushing into Spain, had rolled like an impetuous wave to the very foot of the Pyrenees. It seemed incredible that the people who, at the very dawn of their national life, reared such works as the Alhambra, the aqueducts, bridges, and mosques, which to this day remain the chief wonder of southern Spain, are the same as those who are content in the present day to live in shapeless, almost unornamented, clay-built barracks, with no higher thoughts than the unlimited indulgence of their sensual appetites.

Throughout Morocco there is nothing more disappointing to the traveller than the signs of the decadence of the distinctive arts which in past times made the Moors famous. One naturally expects to find all sorts of beautiful and quaint objects, to see picturesque and enduring buildings, and get glimpses of the most delightfully fanciful interiors. That some such things existed in earlier days is made, every now and then, apparent as we wander through the town. But to know that an object is beautiful, that it shows careful and loving workmanship, and reflects the graceful fancy we associate with things Moorish, is also to know that it is old. In everything else we see there is evidenced a frightful degeneracy in genuine workmanship and artistic taste.

To the painter the enduring colours of other times are as much unknown as is his ancestors’ skill in blending them in effective scrollwork. The stucco and wood carved arabesques

are equally becoming things of the past, simply because there is no demand for them, and consequently the workmen are dying out with no others educated to replace them. The rugs and carpets are reflecting the same degeneracy. Aniline dyes of gorgeous hue have almost entirely replaced the enduring vegetable colours that were formerly employed, and with the colours the skill in effective and harmonious arrangement is alike disappearing. The beautiful glazed tiles, which were once the glory of the Moor, are now not made, except to a small extent at Tetuan. Fez still keeps up a certain reputation for coarse though bold and effective pottery, as also for beautifully-worked waistbands worn by the women; Rahat for carpets and embroideries; Mogador for brass trays and silver ornaments; and Marakah for various kinds of leather work.

There is no difficulty in detecting the cause of this frightful degeneracy. It is the notorious misgovernment which is at the root of this as of all other evils which are ruining the empire. What temptation is there for anyone to set up for himself a handsomely-built house, when the chances are that he will not be allowed to die in it, and that, sooner or later, it will pass into the hands of the sultan, and probably be demolished in search of hidden treasure? As little is he tempted to amass about him things beautiful—which in his heart he loves—in a country where security of property and common justice are unknown.

To show any signs of luxurious tastes, and of wealth to gratify them, would only serve to apprise the government of the fact, with the inevitable result of entailing on the owner a ruinous contribution or imprisonment, and probably torture, till such time as the authorities were satisfied that there was nothing more to be squeezed out of him. Then against the preservation of anything beautiful or artistic, militates the fact that there are no hereditary governors or sheiks, no powerful families, who might pass on their treasures from generation to generation.

Wealth of any kind will rarely remain two generations together in the same family before the sultan has swallowed everything in his omnivorous maw. To prevent this ever-threatening spoliation, the first idea of anyone who has amassed some money is to bury it. The amount of such buried treasure in Morocco, of which the secret has been lost, must be enormous.

An even worse influence than this system of wholesale plunder tends to the rapid deterioration of Moorish art and the disappearance of skilled workmen. These latter have now become so rare that the moment one is discovered to have greater capabilities than his companions he is immediately impressed into the service of the sultan or one of the governors—not, however, to be petted and honoured, and made much of, as was the good old fashion, but to be compelled to work for little more than the barest livelihood. It is not the making

but the ruin of a workman to get a reputation for genius or cleverness in any branch.

In spite of all its air of dilapidation, however, Marakah began to grow upon us when once we had got rid of our preconceptions. In the most unexpected places, often amidst tumbling ruins and all the signs of rapid decay, we were continually attracted by a picturesque nook or some interesting example of Moorish workmanship. Here it was a fountain, on which the artist of other days had lavished all the wealth of his Oriental imagination, and shown all his manipulative skill in stucco, wood-carving, tilework, and colour. There it was the horseshoe-shaped doorway of a mosque overhung with effective mouldings.

We got delightful glimpses of mosque interiors, too—all the more attractive because forbidden, and partaking of a spice of danger. These displayed cool aisles and beautiful wall decorations, shady colonnades, and marble panelled courts, with sparkling fountains.

It was not, however, in its architectural features that we found the special charm of Marakah. As in all Oriental cities, it was its people and its street scenes that gave the most picturesque effects. The very beggars carry their rags with such an air—they appeal to the passer-by in such a high-flown and impressive style—that they become not only objects of compassion but subjects for the artist.

The women, swaddled in their absurd blanket-like coverings, carry about with them something of the glamour of the shining Orient. But though veiled, they are not quite unseen either, for those beautiful eyes of theirs, sparkling with all their liquid brilliancy between black-tipped eyelids and long glossy eyelashes, transfix the gaze of the onlooker, and fire his imagination till he sees, not only beautiful eyes, but face and form, and all the other allurements of the sex to match.

Not least attractive were the substantial city men of Morocco, mounted on sleek quick-pacing mules, or the government officials on gorgeously-caparisoned and prancing barbs, while the weather-beaten Berbers from the Atlas, the gaunt fiery-eyed Arabs from the Sus and the desert, and the shrinking, money-grubbing Jew, all formed effective elements in the scene.

It was in the purely business parts of the town, however, that we found most to admire. Motley throngs of buyers and sellers, busy workmen and idle wayfarers, crowded the narrow thoroughfares, and, with the quaint box-like shops on either side, formed an exhaustless vista of picturesque scenes.

On our first visit to Marakah we were in no mood for an extended exploration of its varied features. The special work we had come to do lay among the Atlas Mountains, which

loomed up picturesquely thirty miles ahead of us. We could linger about the streets with but little satisfaction while there was still a doubt whether we should succeed in penetrating the unexplored glens, or of climbing the snow-clad heights.

So far we had been on well-known ground, with no obstructions, and only the worries of one man to contend with. Beyond lay the unfrequented routes, the half-independent, half-savage tribes, and the region tabooed to travellers.

The scope of my paper will not permit anything but the hastiest sketch of the routes we followed, nor of the rich geographical harvest of new facts which we gathered.

On the 27th of May we took French leave of Marakah, to prevent our plans becoming known, and consequently of being stopped or hampered with an obstructive escort. Going east, we reached the base of the mountains near Sidi Rehal, where we stopped for the night. Next day we passed on to Demnat. We made this charming town and valley our head-quarters for several days, while we made our primary essays of Atlas exploration. In these we were successful far beyond our expectations. We first ascended the glen of Wad Demnat to near the base of the central crest of the mountains, discovering the remarkable natural bridge aqueduct of Iminifiri. Here we saw the unusual spectacles of a fine stream flowing under a natural arch, which crosses from one side of the glen to the other at a height of 150 feet, near its mouth, while the same arch conveys a second stream, in the manner of an aqueduct, from one side of the enclosing mountains to the other, where it falls as a fine cascade.

On a second excursion, to a place called Tasimset, we crossed the lower ranges, and reached a point where we looked down on the glen and radiating tributaries of the Fess-aout, while above us loomed the main axis of the Atlas Mountains, rising like an impassable wall to a height of over 10,000 feet. At Tasimset we explored a remarkable series of artificial caves underneath a beautiful waterfall.

Encouraged by our success, we resolved to attempt the crossing of the main axis. From Demnat there was no frequented route across the mountains, so we returned to near Sidi Rehal, and by a stratagem succeeded in evading the sheik who kept watch and ward over the entrance to the glen of the Wad Gadat. There was much in the successful ascent of this romantic and rugged glen, and in the crossing of the central ridge by the pass of Teluet, which might claim our attention if this paper was either strictly geographical or narrative in its character. We safely reached the southern slopes, made an ascent of a mountain called Jebel Taurirt, and explored another series of caves, before we finally were compelled to return to the plains, all our hopes of penetrating further utterly squashed.

This was not done without a struggle by our party, resulting in semi-imprisonment for a time, and threats of a dungeon and chains. Nor were our movements unattended with danger. On one occasion I was attacked by some fanatical mountaineers, and had an extremely narrow escape with my life.

On getting back safely to the plain of Morocco from Teluet, we made a forced march to Amsmiz, as much to cut off all traces of where we had been as to hoodwink our men, who were always doing what they could to thwart us and prevent us getting into the mountains.

From Amsmiz we were successful in crossing the mountains a second time, exploring the province of Gindafy and the glens of the upper waters of the Wad Nyfis. Thanks to our men, however, and other causes, we were again prevented going further, and were compelled to return to Amsmiz by way of Wad Nyfis.

During this trip my friend was incapacitated by the dangerous sting of a scorpion. Leaving him at Amsmiz, I started off with only two men on a new adventure. We penetrated the glen of the Asif-el-Mel, recrossed the mountains, in the face of great dangers and hardships, and ascended Jebel Ogdimt, the highest peak in this part of the Atlas, reaching an elevation of 12,700 feet, nearly 2,000 feet higher than had ever been attained before.

During this ascent I had a very narrow escape of being shot; and on our return to the foot of the mountain we had to leave the district more hastily than agreeably.

After this trip, various reasons made it necessary for us to re-enter Marakah. Our intention was to have remained only a fortnight, but then we had not sufficiently taken into account that we were in Morocco, and our fortnight expanded into six weeks. Our time, however, was by no means spent unprofitably. We had more leisure to probe nearer the bottom certain questions which had interested us very much. One of these was the influence of Islam on the Moor.

The result of our investigations was far from encouraging. How different its effects in Morocco from what we had known them in the Sudan! There we had seen it burning with the old fire of its early days in Arabia, when it transformed a scattered congeries of nomad tribes into religious propagandists and the conquerors of half the semi-civilised world. Similarly, in Central and Western Sudan, it had commenced a new era of hope and progress to the Negro, and with the watchword of Islam a race of shepherd-serfs, called Fellani, had burst their heathen bonds, and established Mohammedanism as their religion, and themselves as the rulers of a region extending from Lake Chad to the Atlantic. But it was not alone a mere conquering force, leading men to battle and victory. It had

proved itself a great civilising agent, raising the social status of the Negro, instilling the germs of morality into his darkened mind, substituting Allah, the one God, compassionate and merciful, for his old idols and fetishes, and sweeping away the gross mass of superstition and horrible practices which marked his state of barbarism.

But if in the Sudan we found Mohammedanism instilling a new life and vigour into barbarous races, and setting them on the road to spiritual, moral, and material advancement, in Morocco we found it doing quite the reverse. Here it was preventing all advancement, suppressing all higher and nobler impulses which happened to be alien to its spirit, cutting off the believer from all outside genial influences, and acting as a blight upon his whole nature. Like Judaism in the case of the Jews, Mohammedanism had become to its Western adherents a petrifying crust, as incapable of expansion from the inside as of being penetrated from without. Superficially it presented a fair and seemly spectacle, unquenchable faith, scrupulous attention to ceremonial duties, and most absolute submission to the will of Allah, but underneath all was maggots and rottenness.

Mohammedanism had here proved itself to have that amount of good in it which could raise a degraded people to a considerable level of civilisation, and give the main impetus which made their arms all-conquering. Further than that it could not go. With the dying out of the first intense missionary enthusiasm came the dissociation of religion and morality—the petrification of the one and the rapid decadence of the other. The results of these two processes are seen in Morocco in their most advanced stage.

It was difficult to grasp the fact, which had been gradually boring its way into our minds with growing knowledge of Moorish life, that absolutely the most religious nation on the face of the earth was also the most grossly immoral. In no sect is faith so absolutely paramount, so unweakened by any strain of scepticism, as among the Mohammedans of Morocco. Among no people are prayers so commonly heard or religious duties more rigidly attended. Yet, side by side with it all, rapine and murder, mendacity of the most advanced type, and brutish and unnatural vices exist to an extraordinary degree.

These strange anomalies are not confined to any one class. From the sultan down to the loathsome, half-starved beggar, from the most learned to the most illiterate, from the man who enjoys the reputation of utmost sanctity to his openly infamous opposite, all are alike morally rotten. Punctilious performance of ceremonial duties, acknowledged acceptance of orthodox tenets, these are everything in Moorish religion. Moral conduct counts as next to nothing. Kindred views are not unheard of nearer home, but in Morocco they are carried to their utmost limit.

It was an interesting if revolting experience to witness a Moor reverently bending in prayer before the One God, compassionate and merciful, suddenly stop short in the midst of his orisons to scream a curse or some foul obscenity at a bystander who may have aroused his wrath. The Moor who would lose his character by eating meat not slain in the orthodox way would escape with small censure for foully murdering a man; and envy, malice, and all uncharitableness, with theft and adultery super-added, would be held as venal sins compared with failing to acknowledge the Prophet and the Koran.

The very force which made the empire great in the world has now, in its corrupt and degraded form, become the agent which will prove the empire's destruction. It has now become the symbol of the bitterest fanaticism, the rancourest hatred of all other peoples and religions. It glories in its ignorance and its old-world superstitions and ways. Chiefly through its influence, Morocco has become a noxious backwater cut off from the healthy current of advancing civilisation, and there it develops its poisonous germs, and collects its rotting, pestiferous weeds. . . .

Time will not permit me to do more than indicate in the briefest manner possible how we completed our travels in the Atlas and Southern Morocco.

We left the city on the 28th of August, to face once more the perils and hardships of the mountains. Our first object was to ascend the main chain by way of the Wad Urika. Here, however, we met with a serious reverse, and were driven back by armed mountaineers. Though scotched we were by no means killed, and we wasted no time in making another essay. This time it was by way of the Wad Reraya. Here we were more fortunate, and we succeeded in penetrating one of the two glens in which the valley divides south of Asni, and, ascending the central crest at a place called Tizi Likumpt, reaching an elevation of over 13,000 feet.

At this point there was much to tempt us to proceed further, but, all things considered, we resolved to return for the time being to the coast. The deepest loathing of Atlas travelling had taken possession of us, due for the most part to our eternal wrangling with our men. We had never been able to repose the slightest confidence in them. We had constantly been compelled to enact the part of slave-drivers, while their laziness, cowardice, gluttony, and treachery had driven us nearly frantic. With the natives our experience had been little more agreeable. We were never out of a revolting atmosphere of trickery, lies, treachery, and unutterable meannesses. If we had only had half a dozen good men and true we could have gone almost anywhere in the Atlas, and enjoyed the life thoroughly; but, as things were, we could stand it no longer,

unless we could get back to Mogador and start afresh with a new set of men.

We accordingly returned to Asni, and on the 5th of September continued our way west, revisiting Amsmiz, and skirting the base of the range through the provinces of Inzuda and Duerani to Imintanut in Seksawa.

At Imintanut we were on the direct road between Morocco and Tarudant, the capital of Sus. We resolved to finish our exploration in the southern parts of the empire by a visit to this wild and reputedly unproductive region. In this adventure we



IN DISGUISE.

From *Travels in the Atlas and Southern Morocco*, by JOSEPH THOMSON, F.R.G.S.
(By permission of Messrs. G. Philip & Son.)

succeeded, and reached Agadir safely. We thence skirted the coast back to Mogador, which we reached on the 16th September.

Having secured a new set of men, we continued our way north to Casablanca, with the object of making Fez a centre of exploration for the surrounding region. Our plans, however, came to nought, as I had the misfortune to be summoned home to take part in an expedition which never came off, and so prematurely ended my work in Morocco.

APPENDIX.

Report of the Committee of the British Association, consisting of General J. T. WALKER, Mr. H. W. BATES (Secretary), General R. STRACHEY, Mr. W. T. THISELTON-DYER, and Professor W. BOYD DAWKINS, appointed to investigate the Geography and Geology of the Atlas Ranges in the Empire of Morocco. Report to the Committee, by JOSEPH THOMSON.

IN laying before the General Committee of the British Association a general report on the results achieved by my expedition to the Atlas Mountains, I gladly take the opportunity of cordially thanking the Committee for its substantial and welcome grant of £100 towards the expenses of the work.

Briefly stated, I left England on March 9, 1888, and returned home in October of the same year, my explorations prematurely, and, as it turned out, quite unnecessarily, cut short by a summons to take command of an expedition for the relief of Emin Pasha.

In summarising the results of these seven months' travel in what Sir Joseph Hooker describes as the most difficult of all countries to explore (an opinion in which I heartily agree), it will perhaps be well to consider them under their various heads of Geography, Geology, &c.

I. *Geography.*—It is unnecessary to dwell on my travels in the more frequented parts of Morocco. New ground was first touched on my arrival at Demnat among the lower ranges of the Atlas.

From Demnat I made two excursions across the secondary heights of the great range, on both occasions reaching close to the central crest. By these trips I was enabled to map out the upper course of the Wad Demnat, and partially of the Wad Tessaout. Among other discoveries of an interesting nature in this region, I may refer to the remarkable natural bridge aqueduct of Iminifiri, which spans a deep narrow gorge, and not only carries a stream of water from one side to the other, but is also used as a bridge by the inhabitants. Noteworthy also were some extensive ancient ruins on the top of Mount Irghalsor, and a great series of artificial caves at Tasimset.

My next line of exploration lay up the glen of the Wad Gadat from Sidi Rehal. By this glen I penetrated to the very heart of the Atlas, and crossed to the southern side of the mountains by the Tizi-n-Teluet. From the valley of the Teluet I made several minor excursions, in one of which I ascended Jebel Taurirt (11,168ft.), the first occasion on which the summit of the Atlas had been reached in this part.

Proceeding further west, a new attempt was made on the mountain fastnesses from Amsmiz. Following the Wad Amsmiz to its source, the Atlas was again crossed by the pass of Nenieri (9,962ft.), the head-waters of the Wad Nyfis were explored, and the southern slopes reached by penetrating the canyon of the Wad Agandice. Returning to the Plain of Morocco, the lower mountain course of the Wad Nyfis was traced out, and Amsmiz reached by the Tizi-n-Gerimt (7,215ft.).

Further west from Amsmiz the Asif-el-Mel offered a new means of access to the main chain. This glen I explored as far as was practicable, and then, leaving it, crossed by a new pass, the Tizi-n-Nslit (9,715ft.), to the head-waters of the Wad Nyfis, from which I made the ascent of Jebel Ogdimt (12,734ft.), the highest point of the Atlas west of the Wad Nyfis. Amsmiz was again reached by traversing the lower ranges.

Six weeks were unavoidably passed in the city of Morocco, the time being profitably enough spent in a study of the social and political life of the Moors.

On leaving the city an attempt I made to penetrate the glen of Wad Urika failed.

I was more fortunate by way of the Reraya. The glen of its principal tributary, the Wad Iminnen, was followed to its head, from which an ascent of the central crest was again achieved at the Tizi Likumpt (13,150ft.). From this point the Tizi-n-Tam-jurt could be seen to rise 1,500—2,000ft. higher, being probably the highest peak in the entire range.

From Reraya I passed on to Imintanut, from which I made my final passage of the range, and determined to my satisfaction that the Atlas Mountains properly so called end at the Asif Ig, thirty miles from the coast, the further continuation of the elevated land being in the form of a triangular plateau 4,000—5,000ft. in height. From Agadir, where the coast was reached, the base of this triangular plateau was skirted as far as Mogador.

From Fez as a centre it had been my intention to make a series of trips into the

mountains, similar to those undertaken from the city of Morocco; but the summons already alluded to stopped me *en route* at Casablanca, and prematurely put an end to my explorations.

Such as it was, however, from what I was able to do, a clearer and more exact idea of the Atlas Range west of Demnat has been obtained, and its glens and mountains mapped with some approach to scientific accuracy by means of astronomical observations, careful triangulation with the prismatic compass, and route protraction with the ordinary compass. The central crest of the range has been reached at seven independent points, and heights attained exceeding previous travellers as much as 2,000 ft. Several new glens have been explored, and six passes crossed, and generally much new light has been thrown on the physical configuration of the Atlas. On these points it is unnecessary here to enter upon further detail, as I have the honour to forward along with this report the paper and map submitted to the Royal Geographical Society.

II. *Geology*.—Turning to geology, I am happy to report that, in spite of manifold difficulties and obstacles, I have been able to gather together sufficient material from which to construct a geological map of the Atlas Range between Demnat and the Atlantic. With the exception of the work done by Maw and Hooker in 1872, absolutely nothing has hitherto been done to throw light upon the geological structure of these mountains. The comparative absence of vegetation, and the numerous deep gorges and glens cutting right into the heart of the range, in some sort went to counterbalance the incessant espionage and suspicion which dogged my every movement, and made the collecting of specimens an impossibility.

The results of my geological investigations have been embodied in a paper on the Geology of the Atlas and Southern Morocco, which, along with a number of diagrammatic sections and a map, I propose to lay before the Geological Society of London.

Briefly stated, my explorations of the mountains between Demnat and the sea show that they consist—

1. Of a central core or nucleus of metamorphic slates and crystalline limestones, at places much disturbed by intrusive bosses, dykes, and veins of porphyrites, basalts, and diorites.

2. Of an enormous series of red and purple shales, marls, and sandstones, forming the great mass of the chain, at some points, as at Taurirt, rising to an elevation of even 11,000 ft. These, as far as can be ascertained, belong to the cretaceous series.

3. Of an upper series of cretaceous cream and grey-coloured limestones and sandstones, with fossils at places, among which have been determined *Trigonia*, *Arca*, *Rhynchonella*, *Astrea*, *Gryphæa*, *Astarte*, and *Lucina*. These series attain but a small development in the Atlas, as compared with the lower series, and are to be found only in the lower outer mountain terraces or steps. They are characterised by numerous intrusive bosses and great dykes of amygdaloidal basalts, which break through them along the whole length of the mountains from Demnat westward. In the plateau of Southern Morocco the red shales and sandstone series are masked by the limestones, except where some disturbance has brought the former to the surface.

4. Of later formations nothing has been satisfactorily determined. Of glacial deposits there were little more than indications at the heads of some of the glens, and at one or two places in sheltered nooks, as in the glen of the Wad Nyfis. Slightly more important accumulations were observed in the valley of Gindafy, Wad Nyfis, and in the glen of the Urika. Moraines were detected between the Wads Gadat and Misiwa; and in the Valley of Teluet. On the Plain of Morocco transported boulders were remarked. Upon the whole, evidences of glaciation were insignificant, and in those parts I explored I saw nothing anywhere in any way comparable to the enormous deposits described by Maw, of the soundness of whose conclusions as to their being of glacial origin I have the gravest doubt.

III. *Botany*.—On the botany of the expedition I have little to say, beyond explaining the extreme smallness of the collection brought back—a list of which, drawn up at Kew, accompanies this report. The whole of the time spent in the mountains was in the very driest and hottest season of the year, when for nearly eight months scarcely a drop of rain falls. The consequence is that the mountains, even to the highest points, are quite bare, and only along the courses of the streams are any plants to be found. I left Morocco just as the first autumnal rains began to fall.

Very much the same remarks apply to the collection of beetles. A list of specimens secured is appended.

[For further particulars on the Geology, Botany, &c., of the district, see Report of the British Association for 1889.]

PREHISTORIC CHAT MOSS, AND A NEW CHAPTER IN THE HISTORY OF THE MANCHESTER AND LIVERPOOL RAILWAY.

By Alderman W. H. BAILEY (with three illustrations).

[Addressed to the Members in the Library, April 17th, 1889.]

CHAT MOSS is in the Irwell valley, bounded on the north and east by the highlands of Patricroft, Worsley, and Astley, on the west by the river Glazebrook, and on the south by the river Irwell, which immediately changes its name to the Mersey. On the opposite side of the valley, near Partington, is Carrington Moss, and similar moss lands or lagoons exist extending along the south side of the valley to the tidal estuary of the Mersey. St. Chad, of Chester, was Bishop of Mercia in 669, and had dominion over an extensive tract of country from Manchester to Chester, and all lands between the Mersey and the Dee; and it has been said that this is the origin of Chat or Chatley Moss.

Most writers assert, with but little evidence, that the moss was formerly an extensive forest. It is five miles long from east to west, and about three miles broad from north to south.

According to Baines, the forest of Chatley must have disappeared before the Norman conquest, as the Domesday Book only gives in the hundred of Salford very much less forest land than the entire of Chat Moss, as the forests of Horwich and Blackley were equal to nine miles long and five and a quarter miles in width alone, which is about the area of forest lands of the district recorded in that survey.

Underneath the moss the soil is of a sandy nature, and below this is found boulder clay; and although I am not in possession of sufficient information to lead to a definite conclusion, I believe that a forest did not exist to any considerable extent on Chat Moss in the ancient days. We have sufficient evidence to show that it was formerly a great inland lake, probably with forest trees on the margin, and that it was fed by the Irwell and subjected to occasional inundations of tidal water from the Mersey, and that the outlet of this inland lake has in course of time become impeded by wind-blown sand driven from the Mersey estuary by the western gales.

This wind-blown sand not only impeded the drainage of this inland lake, but it has from time to time changed the course of the Irwell as well as that of the Mersey. The enormous amount of clean sand, absolutely free from pebbles or boulders, laid bare by the excavations of the Manchester Ship Canal, in the vicinity

and immediately below Chat Moss, I think, is convincing testimony of this. This sand would effectually impound the drainage of the small rivulets and water-courses from the upper lands of Patricroft, Worsley, and Astley, the water from which before went into the river through the lake, which would probably extend right across to the Carrington side of the river to the high lands of Lymm, and would be in shape similar to the great Mersey Bay, lower down the stream, into which the Ship Canal enters, which I will call Eastham Bay.

The accumulation of rank vegetation would accelerate the impediments, and in course of years the whole district became a moss, which I would venture to suggest was years ago a great inland lake. That the river has formerly been much deeper we have evidence in the discovery of the old boat in the cutting of the Ship Canal a few days ago.* This boat was found fully twenty feet below the present bed of the river, in the immediate vicinity of Chat Moss, at a place called Salt Eye cutting.

I have not been able to get the exact levels all over the moss, as it is difficult to obtain the information. I, however, find that in some places it is 150 feet to the sand, and the depth varies to 50, 30, and 25 feet. The greatest depth at present known is at a point not far from Astley Station, on the London and North-Western Railway, indeed at one place there it is 180 feet deep. This places the level at the bottom far below tidal water, as even a depth of 50 feet places it much below the tidal water coming up to Warrington.

The success of the works of the Bedford Level Drainage on the east coast caused much attention to be paid to similar lands in other parts of the country. It will be remembered that this great work commenced in the reign of Charles the First. Many thousands of acres of land have been reclaimed and made profitable to agriculture. In an old book I bought the other day (printed by Moses Pitt, at the Angel, in St. Paul's Churchyard, in the year 1685), a poet encourages such undertakings in the following verses:—

After long Tillage, it doth then abound
With Grass so plentiful, so sweet, so sound,
Scarce any tract but this can Pastures shew
So large, so rich, And, if you wisely Sow
The fine *Dutch* Clover, with such Beauty spreads,
As if it meant t' affront our *English* Meads.

Ye busie Gentlemen, that plant the Hop,
And dream vast gains from that deceitful Crop,
Or by manuring what you ought to Let
Thrive backwards, and too dearly purchase Wit,
Leave off these Lotteries, and here take your Lot;
The Profit's certain, and with ease 'tis got.

* Lady Egerton discovered the old boat, when, accompanied by a party of friends, visiting the Ship Canal works. Noticing one of the steam navvies at work at a face in which appeared to be an old tree, her ladyship called attention to the fact that what was thought to be an old trunk of a tree was a canoe, and on examination the surmise was found to be correct.

Courageous Merchants, who, confronting fates,
 Trust Seas and Pyrates with your whole Estates,
 Part in this Bank, methinks were far more sure ;
 And ye, whom hopes of sudden Wealth allure,
 Or wants into *Virginia*, force to fly,
 Ev'n spare your pains ; here's *Florida* hard by.

If therefore Gain, or Honour, or Delight,
 Or care of Publick Good, will Men invite
 Into this fortunate Isle, now let them enter
 With confidence ; since here they all concenter ;
 But if all these be choakt, and drown'd with flegm,
 Let them enjoy their Sloth, sit still, and dream.

The trees found on the moss may have grown on the banks of the lake, or may have been washed down from the upper reaches of the Irwell, for many similar trees are continually discovered in the excavations of the Ship Canal along the whole course of the valley.

It may be of some interest to state that the moss is subsiding gradually. The farmsteads built on piles driven through the moss into the earth beneath are in some cases now ten feet above the level of the surrounding land, and those built upon the moss without the support of the piles are from five to fifteen feet below the surrounding level.

The geological formation of the strata at Chat Moss has been described by Mr. W. Brockbank, in a paper read before the Literary and Philosophical Society in 1886, and those who are interested will find in the journals of that society a very excellent description. In one place Mr. Brockbank found 17 feet of peat moss, 18 inches of sandy clay or loam, and then a depth of 26 feet 6 inches of boulder clay, and below that soft red rock. Generally the bed of the moss is sandy.

In consequence of the imperfect drainage, after long-continuous rains the moss became so full of floodwater many years ago as to cause its upper surface to move.

Leland thus describes what occurred in the reign of Henry the Eighth, as follows:—

“ Chateley More, in Darbyshire, is three or four miles in bredthe, and six miles yn length, sum way brast up within a mile of Morley Hall, and destroied much ground with mosse thereabout, and destroied much fresch water fische therabowt, first corrupting with stinking water Glasebrook and so Glasebrook carried stinking water and moss into the Mersey water, and Mersey corruptid carried the roulling mosse part to the shores of Wales, part to the Isle of Man, and sum into Ireland. In the very toppe of Chateley More where the mosse was hyst and brake is now a fair plaine valley, as was in tymes paste, and a rille runnith in it, and peaces of small trees be found in the botom. Syr John Holcrofte's house within a mile or more of Morle stoode in jeopardi with fleeing of the mosse.”

Also in the reign of Elizabeth, Camden describes Chat Moss as a swampy tract of great extent, a considerable part of which was carried off in the last age by swollen rivers with great danger.

In the 15th year of Edward II. the moss is placed in the manor of Manchester. This would be in the year of our Lord 1322, and in a description of the time Chat Moss is of the soil of the lords of Barton, Worsley, Astley, Workedby, and Bedford. "The tenants of these Lords had here Common Turbary, but no profit can be computed, because of the unfair quality of it."

We will now discuss the utilisation of the moss, and also some interesting work in connection with the railway which crosses it.

At the commencement of this century, William Roscoe, the poet, philanthropist, and banker, and, to use the words of Baines, "the elegant historian of Leo X.," was a very busy man. His genius was many-sided, for in the midst of active commercial pursuits he found time to lecture on the fine arts as well as on the national importance of introducing new food seeds, and on improved methods of agriculture. He composed odes, psalms, hymns, and sweet sonnets; wrote histories which are classical to the student of Italian literature, and as an orator and essayist he influenced the public conscience in favour of the righteous work of his friends, Wilberforce and Clarkson, the liberators of the African slave.

We also find him, with the sanction of Parliament, engaged in improving Chat Moss, dividing it into farms, draining it, and making it increase the food supply of this country. For more than a quarter of a century this energetic lover of utility and beauty devoted himself and his fortune to the cultivation of this morass.

In 1811 a poet pays homage to his achievements:—

"Roscoe, to whose patriot breast belong
The Roman virtue and the Tuscan song,
Led Ceres to the bleak and barren moor,
Where Ceres never gained a wreath before."

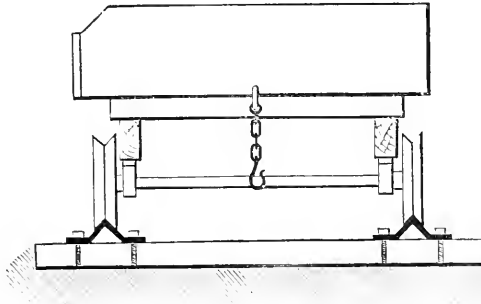
That hereditary qualities, that the features of the mind as well as those of the face may be transmitted, we have evidence in his illustrious grandson, Sir H. Roscoe, M.P. for Manchester.

There were small railways and we call them pioneer railway engineers before George Stephenson, and railways on Chat Moss before the Manchester and Liverpool Company's Act.

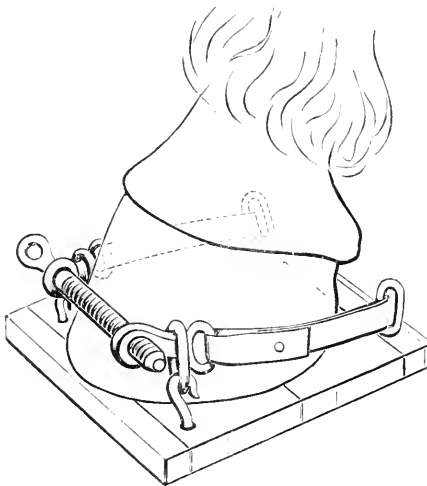
For the cultivation of Chat Moss Mr. William Roscoe was fortunate in obtaining, as steward, the services of Mr. Robert Stannard, who had had considerable experience on the Norfolk Broads and the cultivation of the bog land of that county.

Although it is outside the scope of our subject, permit me to say that the other day I picked up an old book 200 years old, in which is the history of the Bedford drainage. One of the contributors to the scheme was Sir Oliver Cromwell, whose estates were taxed for his share of the work. His nephew,

ILLUSTRATIONS TO PAPER BY MR. ALDERMAN W. H. BAILEY, ON A
CHAPTER OF LOCAL GEOGRAPHY—CHAT MOSS.



Model of Mr. Roscoe's Chat Moss Railway.



The Chat Moss Horse Patten.



The Boat found in the Ship Canal near Chat Moss.
(By permission of the *Manchester Guardian*.)

Oliver Cromwell, was sent to Parliament by Cambridge burgesses to oppose the scheme, and thus became a public politician. The responsibility for the fate of that unfortunate monarch, Charles the First, may now be put upon the right shoulders.

Mr. Roscoe introduced railways, designed by Mr. Stannard, on the moss about the year 1816. The rails were of wrought iron, like a **V** inverted, the wheels of the worm being grooved similar to those used for rope pulleys. These railways were portable, because, being light, they were easy to move from one part of the moss to another. When thus engaged in developing the capabilities of the moss for agricultural purposes, the survey for the new railway commenced, about the year 1823, and Stannard has stated that when Stephenson saw the many deep drains that had been cut in the moss, and the wagons and tramways at work, he determined to go straight on over the moss instead of going round, which would have taken the railway one and a half miles nearer Worsley on the high land there. When the Bill had been passed, the directors gave Stannard the contract from Eccles to about three miles over the moss. The story of the enormous difficulties in connection with this work has been graphically told by Mr. Smiles, as well as by writers of local history, but the part that Stannard took in assisting Stephenson, I think, has not been related.

The first difficulty in not finding a bottom of Chat Moss was at a place called Blackpool Hole. Here the contractor tipped spoil for more than three months without making the slightest progress. Quantities of old sugar casks were chained together with brushwood and moss, but these came to the surface again at some distance from the side of the line. Altogether something like 70,000 cubic yards of spoil were tipped and disappeared at this place. At length the directors began to complain, and Stannard urged them to purchase a plantation of young larch trees, about half grown, nearly a mile distant from the line, at a place then and still called Botany Bay Woods, near to Worsley Hall.

Part of the wood was bought, the trees grubbed up by the roots, and dragged to the moss. These trees were laid together "herring-bone" fashion. Pieces of rock, spoil, earth, and loose material were then tipped upon this timber, and the desired effect was obtained. No further difficulties were then encountered, the remaining portion of the work being done by the ordinary side drainage and copping. The whole of the cost of the four miles was not more than £37,000, which was considered a large sum in those days, but which would not be thought very costly at the present time. The Directors allowed Stannard a penny per cubic yard extra for the expenses in the purchase of the plantation of Botany Bay Wood.

Mr. Edward Baines continued the cultivation of Chat Moss commenced by Mr. Roscoe, and there are now hundreds of acres under cultivation.

It may be of interest to state that the piecework rate of wages paid for the main drains of the moss was from 1½d. to 1¾d. per cubic yard, at which rate men earned from 3s. to 3s. 6d. per day.

During the controversy between Stannard and Stephenson, it seems there was a great difficulty in convincing Stephenson that the raft system was the best, as Stephenson always insisted that if they put spoil enough on the moss it would find a bottom. But although it did no doubt sometimes reach the bottom, it did not stay there, as the bog had a specific gravity like a quicksand, and assisted a flow from each side. But after many anxious discussions, Stephenson said to Stannard, "Have your own way." The contractor replied, "Yes, I will, but I want some money." Stephenson then said, "The directors have none, but I have £400 in one of the Liverpool banks of my own, and I will lend it to you." He got the money, and, with a fresh supply of wagons obtained from Manchester, and the weft and warp of the trees of Botany Bay Wood, he became successful in obtaining a foundation.

The history of Botany Bay Wood is of some interest, for here the first attempt to make a canal was made by Francis Egerton, the third Duke of Bridgewater. The wood is on the south-west side of Worsley Hall—that is to say, between Chat Moss and Worsley.

In the reign of George II., in the year 1758, an Act of Parliament was obtained to make a canal from Salford to Worsley, and thence to Hollins Ferry, on the River Irwell. The duke began operations in the bog land at Worsley, which is now Botany Bay Wood. After a short length was made, it was found not only that it would not hold water, but that it was impossible to get to the river in that direction, as Chat Moss was in the way. This short length drained the surrounding land and brought it under cultivation. Trees were planted, and Botany Bay Wood was the result.

Before 1758, Scroope Egerton, the first duke, obtained power from Parliament to connect Worsley Brook with the River Irwell. Only a portion of the work was made. The Salford Canal scheme was abandoned by the third duke, but by means of the Barton Aqueduct, constructed by Brindley, he crossed the river and made his canal to Manchester. Thus the mistake of the Duke of Bridgewater contributed to the success of George Stephenson three-quarters of a century after.

It will be remembered that I read a paper some short time since, in which I stated that at the Worsley Canal yard Fulton's first steamboat was built, and worked on the "Duke's Cut," or

canal, in 1798, before he went to continue his experiments on the Hudson River, in America.

A few days ago, I saw in the office of my friend, Mr. James Lamb, what appeared to me to be a snow shoe, and on making inquiries I discovered it had been sent to him by Mr. Stannard's son—Mr. Robert Stannard. This is mentioned in Smiles's "*Life of Stephenson*," where it is said Mr. Roscoe adopted the expedient of fitting his plough horses with flat wooden soles or pattens to enable them to walk upon the moss land which had to be brought into cultivation. The pattens were fitted on by means of a screw, which met in front of the foot, and with the increased base thus given, horses were enabled, when fitted with these pattens, to walk about the moss. These pattens are still used on the farms at the moss.

This patten was introduced by Stannard. He also designed improvements in carts and wagons especially for the moss work, with wheels ten inches wide. He was the first to grow swede turnips on Chat Moss in the year 1817, and exhibited samples at Warrington Market dinner in that year. In 1816 he placed 100 Southdown sheep on the moss, obtained from Norfolk.

THE USES OF HISTORY TO THE ENGINEER.

The engineer's daily work and business is to remove obstacles and to triumph over difficulties. Despair is not in his vocabulary. With him muscle must always enter into partnership with brain; rationalised energy is his text; the history of great work his guide; therefore the contemplation of the bold patience, pluck, enterprise, and triumphs of such men as Roscoe, Stannard, the Dukes of Bridgewater, Stephenson, and Brindley is a profitable investment of time, for thus he may enlarge the orchard of his mind, and gather ripe fruits from trees planted by other men.

The story of man's labour on that triangular plot of land to which I have invited your attention, whose corners are Barton, Worsley, and Chat Moss, is to the engineer a perpetual textbook. Accompany me in imagination to Botany Bay Wood, and with our backs to Worsley Hall let us look to the left, and there we see Nasmyth's works, the birthplace of the steam hammer. Right in front is the Bridgewater Canal and Brindley's Aqueduct, at one time considered a wonderful triumph of the genius of an unlettered man. We also see one of the first railways ever made—the Manchester and Liverpool old line. There is also in sight another great work, the destinies of which are presided over by another Egerton—the Lord of Tatton—whose capacity and prevision entitle him to rank in our esteem as a worthy kinsman of the far-sighted public benefactors of his house and name, for in the far distance are the great steam

navvies and a portion of the fifteen thousand men who are engaged in making the Manchester Ship Canal, using many huge tools, some of which dig and deposit in trucks a cubic yard of earth every four seconds. On the right are the smiling farms and market gardens of Chat Moss, created upon what was in ancient days a pestilential swamp, but now brought under subjection by Roscoe and his doughty knights of the field of the cloth of green and gold. Every buttercup and daisy seems to whisper praises, and each tree and blade of grass to pay willing and graceful homage and gratitude for its rescue from the wilderness.

"Your voiceless lips, O flowers, are living preachers,
Each cup a pulpit, each leaf a book,
Supplying, to our fancy, numerous teachers
From lowliest nook."

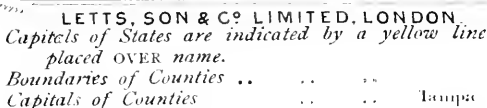
The picture is one that appeals to the lover of his country, and it also creates exultation in the mind of the engineer, for those imperial, intellectual, and moral qualities that have made us a great people yet live in men of our race and blood. Knowing and feeling this, we need not despair of the future of Old England, nor of attacks from any quarter on our commercial supremacy.

*** Portuguese Explorations in Austral Africa during the Nineteenth Century.**—By J. BATALHA-REIS, F.R.G.S.—From the fifteenth century to the present time the Portuguese have not ceased to explore those parts of Africa where they settled, causing the continent to be traversed from the coast to the interior, and from the Atlantic to the Indian Ocean. Outside Portugal the greater part of the Portuguese explorations of the nineteenth century are entirely unknown. Many geographers and the public in general believe, and repeat daily, that Portugal has done nothing in Africa since the sixteenth century, and that even then her travellers explored only the African coast. As ignorance regarding the chapter of geographical history is the origin of many and great mistakes in modern questions which are linked up with politics and international right, and with which public opinion is so intensely preoccupied just now, I judge it to be opportune to present an indication of the principal Portuguese explorations, at least, from the beginning of the nineteenth century, with the mention of the principal documents wherein the little-known literature of the subject may be studied. The chief Portuguese explorations of this century commence with its earliest years. In 1502, the expedition sent out by Colonel Honorata da Costa from Angola, which traversed the whole of the continent from the basin of the Kassai to the basins of the Lualaba, Luapula, Bangweolo-Bemba, and North Loangwa, arrived at Tete in 1511. In 1504 and 1505 Father Cannecatim published his dictionary and remarks upon the Bunda, or Angolense, language, and the narrative of his journeys in Africa. In 1531-1532 Monteiro and Gamitto explored the region between Lakes Nyassa, Bembo-Bangweolo, and Moero and the River Zambeze. In 1535-1545 Major Francisco J. Coimbra made his journey from Mozambique to Benguela, across Africa, and visited the lakes to the north of Kalaari. In 1543-1547 Joachim Rodrigues Graça went from Golungo to Bié, and thence to Lunda, almost at the eastern extremity of the basin of the Kassai. For many years Silva Porto travelled and explored the territories between the valley of the Kwanza and that of Liambye on the Upper Zambeze. In 1552-56 his expeditions travelled from the Upper Zambeze to the Upper Luangué, and between the basins of the Zambeze and of the Congo, passed to the south of Nyassa, and crossed, diagonally, the region between the Nyassa, the

* This summary by the Portuguese Consul for Newcastle is a valuable document for reference, and the Members will be glad to have it at hand.

Rovuma, and the sea. In 1855-56 Montanha and Teixeira explored the territories between Inhambane, the Limpopo, and the north of the Transvaal. In 1877 expeditions of engineers were sent by the Portuguese Government to all their colonial provinces of Africa, and instituted the investigations and works which have gone on up to now, and from which the first railways in these regions had their commencement, the more perfect knowledge of many of the regions being also due thereto. In 1877-78 Serpa Pinto crossed the continent of Africa from Benguela to Bié, and thence, by the affluents of the Kwando, to the Upper Zambeze, thence to the lakes north of Kalaari, thence through Bechuanaland to the Transvaal and Natal. In 1877-80 Capello and Ivens went from the valley of the Cunene to the valley of the Kwanza, and thence to that of the Kwango, which they investigated nearly as far as lat. 6° S. In 1883 Antonio Cardosa visited the districts which lie between the river Save and the upper valleys of the river Buzi. From 1880 Paiva d'Andrade has been exploring the lands which lie between the Zambeze and the valleys of the Save and Buzi. In 1884-1885 Capello and Ivens travelled right across Africa, from Mossamedes to the rivers Cunene, Cubango, Liambye, Lualaba, Luapula, Lake Bemba, and thence to the Zambeze, from near the mouth of the Kafue to the sea. In 1885-1886 Augusto Cardoso traversed from Ibo to the Nyassa, and thence by the Shiré to the Zambeze. In 1884-1888 Henrique de Carvalho and Sisenando Marques investigated the territories between the Kwanza and the Kassai in the districts of Lunda. These are the better-known travels, but the Portuguese have undertaken very many less extensive but more minute explorations than these, which are almost entirely unrecognised, and cannot be mentioned in a brief abstract. They have thus covered with a work of uninterrupted investigation, from the sixteenth century up to the present time, almost all the more important regions of Africa which can be found between a line drawn from the mouth of the Congo to that of the Rovuma, and from that of the Cunene to the south of that of the Limpopo. Many explorations, exclusively scientific, more limited, and more delayed in their results, have been and still continue to be carried on. It was under the Portuguese Government that Welwitsch made his investigations and botanical collections in Angola (1853-60), which are amongst the principal bases of all that has been published on the Tropical African flora. In 1864-5 Pinheiro Baiao collected important zoological specimens in the districts between the Lucala and the Bengo in Eastern Africa, as did the two missionaries, Father Antunes in Huilla, and Father Barrozo in the Congo district. From 1864 José d'Anchieta has resided in the interior of Africa, and thence has sent the notable investigations and magnificent collections, for the most part zoological, which so enrich the Natural History Museum of Lisbon (Eschola Polytechnica), and which, in part, have been studied by Professors Bocage (reptiles, birds, mammalia), J. A. de Sousa (birds), Felix Capello, Guimarens, Osorio (fishes and crustacea), Mattoso dos Santos (myriapoda), M. Paulino de Oliveira, A. Girard (insects), Count Ficalho (flora), &c., not to mention other than the principal Portuguese *savants*. From the said Anchieta are some recent geological researches upon the Angola formations; and upon his collections, those of L. Malheiro (1883), and those of other travellers, the investigations of Delgado, Choffat, and other geologists of the Lisbon Geological Commission have been founded. The principal and less-known sources whence to study recent Portuguese explorations are: "Boletim e annaes do Conselho Ultramarino, Annaes maritimos e coloniaes;" "Annaes da Marinha Portugueza;" "Boletins officiaes da Provincia de Angola;" "Boletins officiaes da Provincia de Mozambique;" "Boletins (and other publications) da Sociedade de Geographia de Lisboa;" "Journal das Sciencias Mathematicas e Naturaes da Academia das Sciencias de Lisboa;" "Boletim (and other publications) da Commissão dos Trabalhos geologicos de Portugal;" "Memorias estatisticas das Colonias Portuguezas," by Botelho, Lopes Lima, Bordalo;" "As Colonias Portuguezas," &c.—*British Association Reports*, 1889.

The Zambesi Delta.—Mr. B. D. J. Rankin has been engaged in making a detailed examination of the river Zambesi from the junction of the Shiré river to the sea. He has described the physical characteristics of the delta, and more particularly the Chindé river. This is one of the mouths of the Zambesi, and Mr. Rankin is of opinion that it is a stream of sufficient depth and constancy as to form a clear outlet from the Zambesi. If all that is said of it is correct, the importance from a political and commercial point of view of the Chindé can hardly be over-rated in connection with free and unrestricted navigation of the great African river. For the trading companies now at work in the Nyassa lake region and the higher Zambesi, and its value to the new protectorate on the south of the frontier, the permanency of this opening in the delta must have very important consequences.





FLORIDA AND THE ENGLISH.—(*See Map.*)

By MR. ARTHUR MONTEFIORE, F.R.G.S.

[Addressed to the Members in the Memorial Hall, Manchester, Wednesday,
May 1, 1889.]

THERE are few of the newer countries of the world which deserve from us such close attention as Florida. The English emigration to that state is of so high an order that it reaches a plane of importance out of all proportion to its numerical strength. Not only have our sons or our brothers, but also "our sisters, our cousins, and our aunts," migrated thither. English ladies as well as English men and English lads have found in that interesting and unique peninsula many a delightful home. Men of superior birth and education, and women to whom refinement has come by nature, no less than by breeding, have gone out from the dear old homes in this favoured but overcrowded country, and set their mark in no unmistakable manner upon this particular portion of the New World. The character of Florida belongs so peculiarly to itself—is, I may say, so idiosyncratic—that to thoroughly understand the conditions of life it imposes one must possess a knowledge not unlike that which Sam Weller had of London, and which, I need hardly remind you, was "both extensive and peculiar." With such a knowledge I have scraped an acquaintance, and I hope to-night to be allowed to utilise my experience and investigations in that State by introducing you to something of the surroundings and doings of the English in Florida.

Geography has been defined as the science which answers the question, "Where?" It would be highly improper, therefore, for me to explain to a Geographical Society the whereabouts of Florida. Most of us, if not all of us—for the intrusion of the strange and profane is not unknown even in the most learned of societies—know where it is, down in the very south of the United States, and looking, on the map of North America, for all the world like a tentacle or feeler stretched out toward the sunny tropics and that great curved bow of palm-fringed islands we call the West Indies. These, with Florida, are the eastern edges of that cauldron-sea, the Gulf of Mexico, and between them for ever flows into the wide Atlantic—northward, southward, eastward—the Gulf Stream. Thus we have Florida, a peninsula some 500 miles in length, flanked on the one side by the Atlantic Ocean—here overlaid by the warm waters of the

Gulf Stream—and on the other by the equally warm waters of the Gulf itself, thrusting its southern extremity into the balmy seas of the tropics, while in the north it is riveted to the great mass of land that extends in almost unbroken continuity to the lone North Pole itself. It is not surprising, therefore, that the climate of Florida should be, if not insular, at least peninsular. It is not to be wondered at that across its pine-clad plains fresh ocean breezes should daily sweep, that the air is as mild and moist as that we feel against our faces when sailing on summer seas, and that there we find the combination of great moisture and great heat which is the characteristic feature of a tropical climate. There is the heat, with its attendant ills—notably, gnats and mosquitoes; there is the moisture, with the inevitable risk of malaria; and there are the balmy air and aqueous breeze which ripen our crops while they refresh ourselves. And it should not cause surprise if occasionally in winter time a flying visit is received from Jack Frost, for Florida is part and parcel of that continent whose central and northern regions are held in the bitter grasp of winter for many months in the year, and are the habitat, the birthplace, of the blizzard.

I cannot enter now upon the building of Florida, or describe how, by geologic processes, the arch-architect Nature has reared on a basis of coral a land of such fertility. I cannot speak of the forces of erosion or upheaval, nor discuss the question of how far Northern Florida is due to the *detritus* of the Apalachian chain, and whether that vast lake, Okeechobee, in Southern Florida, be really the last remnant of the atoll of which the long stretch of coralline rocks on the Atlantic coast is the eastern rim. Neither can I dwell on the historical aspects of the subject, and enter upon the debatable land of controversy. I have no time—even if I had the power—to settle the question whether Florida was discovered by Juan Ponce de Leon, the Spaniard, or by our own countryman Sebastian Cabot, who was born at the ancient and once most important port of Bristol, of a Venetian father, a pilot by profession. I need not dwell on the many political changes which have passed over Florida, or follow the fortunes of the aboriginal Seminoles, and the intruding Spanish, French, English, and finally Americans. It will be enough if I am able to give you a brief description of the country as it appears at the present day, and draw your attention to the characteristic features you would encounter in a journey through the State.

On arriving in Florida the first feeling—especially if we have read much about the beauty and wonders of the “Land of Flowers”—will be one of disappointment. The stranger enters at the northern extremity of the state, and the palm trees and magnolias, the gardenias and wild roses, which have caught his fancy and fired his imagination, are not to be found there.

They grow in profusion in the south, and are met with in large quantities in the centre of the State, but in the north nothing will be encountered but miles and miles and miles of pine forests; pine forests with no wealth of undergrowth—with the tall thick stems appearing like masts behind one another for a mile and more at a time; pine forests covering league upon league of flat and grassless plains. For neither is there grass—the short, thick, juicy grass, as we understand it—in this part of Florida—only long, thin, wire grass, and plenty of that. The soil, which the new arrival may have imagined as a rich dark loam, proves to be grey sand or yellow sand almost everywhere. He straightway begins to sympathise with the “walrus and the carpenter,” and feels that he, too, could weep like anything to see “such quantities of sand.” But he will sooner or later discover that the whole of the Atlantic seaboard states have the same soil. From Sandy Hook, at the mouth of New York harbour, to Cape Sable—which means Cape Sand—at the southern extremity of Florida, there stretches, in unbroken continuity, a land of sand. The fertile and prosperous states of Virginia, North and South Carolina, and Georgia possess the same soil, and it is from this loose sand that the famous cotton and tobacco of these states have come. It is true that this northern belt is not the most luxuriant section of Florida. But we must not suppose that it is *Florida infelix*. Far from it. This is the peculiar region of the “trucking” industry. Hundreds upon hundreds of thriving vegetable and fruit farms are to be met with. Many Englishmen are making handsome incomes out of their strawberries and cabbages, Le Comte pears and Pean-To peaches, tomatoes, and potatoes, in this northern belt. Tobacco is again coming in for that share of patronage which “befo’ the war” it monopolised with cotton. The successful culture of the grape vine is giving birth to the manufacture of wine; and although this part is outside what may be strictly called the Orange Belt, prosperous orange groves are encountered more often than might be supposed. Still, it is not the Florida we expect to see and ultimately shall find.

The first day or so in Florida, then, will probably be a time of disenchantment. It is only when Jacksonville, the gateway city of the state, is left behind, and the new arrival is borne by a luxurious steamer up the broad river of St. John, that he begins to realise he has come to the orange-growing country. A few miles south of Jacksonville the face of the country undergoes a change. The land is more undulating, the banks occasionally rise to the dignity of cliffs, and the pine forests draw away from the river and fringe the horizon. In their place hundreds and hundreds of acres of orange and lemon groves, occasionally interrupted by pear and peach orchards, appear. Pretty wooden bungalows, gaily painted in three or four colours, stand in the

midst of the groves, and here and there along the banks a jetty projects into the river—the first connecting-link between the producer and the consumer.

If it were winter when he left the north, here the stranger will find all is summer. Amid the dark-green foliage of the orange-trees countless golden orbs are shining—the precious harvest of Florida. Fruit-trees will be ablaze with blossoms, and in the more favoured spots strawberries will be flushing with a ruddy ripeness. The sky is perfectly clear, the sun pleasantly warm, and the air of a most delicious inconsistency—soft as milk, and yet with the typical sparkle of champagne. Should he be so fortunate as to reach this region on a perfect winter day, the new arrival, whoever he be, will straightway fall in love with the country.

At Mandarin, the *orange belt* may be said to begin. From this point to just south of Tampa—an area extending over two degrees of latitude—the orange-tree is supreme. The country rapidly becomes semi-tropical in appearance. The famous hammocks are no longer few and far between, and their dense growth of red-bay, mahogany, magnolia, and cypress is a more and more familiar feature in the landscape. If one is travelling south by the great waterway of St. John's river, the change is even more marked. The water-oak and cypress—festooned with grey pendants of Spanish moss—grow to the water's edge; upon the bosom of the river there lies an unbroken web of broad-leaved waterlilies; blue and white cranes and turkeys fly before the advancing steamer, and the somnolent alligator on the bank plunges into the discoloured stream. Night and morning dense clouds of miasmatic mist envelope the valley, and warn us that the ghostly presence of malaria—the natural heritage of such a land—prevails. The cabbage-palm and palmetto emphasise the character of the region now reached.

This is the Orange Belt *par excellence*. The farther south we go the more marked becomes its character. The chief geographical feature of the belt is the myriad of lakes. From mere ponds to sheets of water of vast extent, they are to be found in ever-increasing frequency as one journeys south. Once fringed by the pine-woods, they are now set in an environment of orange groves, for “a lake-front” is a desirable property in the public estimation, and the settler invariably gravitates towards its acquisition. In this region the great majority of English settlers are to be found—rearing their wooden bungalows on the higher pine-land, and cultivating their twenty or forty acres with more or less industry.

In order to place before you the characteristics of the Orange Belt with greater distinctness, I will divide it into two sections, eastern and western—fluvial and lacustrine; the one predominated by that great artery, the St. John's river, and the

lagoon called the Indian river; the other by the hundreds of lakes which, frequent everywhere in Florida, here become positively commonplace.

The eastern section is narrow and much the smaller; the western wide and more important. I have given you some idea of the scene presented in the vicinity of the St. John's river, so I will pass to the next great feature of this eastern section, the Indian river. It is properly not a river but an arm of the sea, the water being salt and tidal. It is fed by the Atlantic through the channel of the Indian inlet, which is over 100 miles south of the head of the river. The coralline belt of land which separates this lagoon from the ocean varies in width from a furlong to five miles. The river itself is never narrower than a mile, nor wider than seven miles. The tide is slight, and the motion of the water is chiefly derived from the almost constant breezes which come from the ocean. The shores are in many parts composed of that curious conglomerate which the Spaniards, who built St. Augustine with it, called *coquina*. The underlying bed of coral, in the process of disintegration, mixed with the contiguous comminuted shells, and cemented together by the action of salt water, formed the concrete. The river supplies oysters and turtle, fish of great variety—at the inlet the manatee himself is caught—and, most important of all, its banks are the home of as fine an orange as can be found anywhere in the world. This is all the more curious as the Indian river orange belt is only about three miles wide. It chiefly lies on the west bank of the river. This belt is confined by the wet prairies—large tracts of saw-grass with perennially standing water—which lie to the westward along the course of the head-waters of St. John's river. Further south, this belt is limited by the swamps and saw-grass area between it and the Kissimmee and Okeechobee lakes. The shores of the Indian river are free from swamp, and rise at an acute angle (for Florida) into what may sometimes be called high bluffs. The homes of the settlers are either on these bluffs or some navigable stream flowing into the river. Every property has its own boat-landing, and the river itself is the highroad of the region. Sailing boats of all kinds of rigs take the place of "buggies" and "buck-boards" in this part of Florida. In fact, we might call the rapidly growing Indian river settlement the Venice of Florida. On the narrow strips of land east of the river the pine-apple is being successfully cultivated, and southward, toward the inlet, the cocoa-nut palm region begins. As the cocoa-nut requires salt water and a coralline or limestone soil, the southern coasts of Florida are admirably adapted for its cultivation. This coast strip is unsuitable for oranges, which appear to shrink from the undiluted ocean gales. The Indian river orange is a noble fruit. There is little in common between it and the product of the Mediter-

ranean. The pulp is so delicate, the skin so tender, and the juice so sweet that I confess I have no hesitation in describing it as a perfect orange. The famous Dumit Grove, at the head of the Indian river, first gave a distinctive character to the orange of this region.

I now turn to the western and larger section of the Orange Belt, which lies westward of St. John's river. This is emphatically the lake region. Around Lakes George, Apopka, Harris, Griffin, Eustis, Weir, Tohopekaliga, and East Tohopekaliga are some of the finest groves in the state. The Harris Grove on Lake Harris is the largest, and the Norris Grove near Spring Garden (south-east of Lake George) the second largest grove in Florida. The latter has, I believe, no fewer than 15,000 trees! The De Barry Grove, on Lake Monroe, is hardly less famous. The high lands of Hernando and Sumter counties form the most healthy district of Florida. Until the recent creation of Lake County, Sumter was without doubt the premier county of the Orange Belt. It has now lost its most important lakes, and the palm will in the future be carried off by Lake County. The whole region shares with the rest of Florida its great diversity of soil; but the outcropping rocks, the clear and never-failing springs, the innumerable creeks and rivers, the open lakes, the rolling hills, the general elevation of the pine-land—which near Apopka reaches the altitude of some 400 feet—and in Hernando County the rich clay subsoil are the peculiar property of this portion of the Orange Belt. There are, of course, swamps and prairies, for no part of Florida is without them; and you can ride, as I have often ridden, for an hour or more at a time through some cypress swamp, where the enormous trees seem to emphasise the ghostly desolation with their huge whitened trunks and branches—the latter entirely devoid of leaves; where the long grey hairs of the Spanish moss accentuate the oppressive melancholy; and where the water, which washes up to your stirrups as your horse slowly and cautiously forges ahead, is coloured a dismal brown by the tannin of the spongy mass of vegetation. But, at the same time, here are fine rolling pine-lands, a healthful climate, an ever-growing community, and as lovely homes as exist in Florida. Hundreds, aye, thousands of Englishmen are dwelling in this region, either as members of the English colonies, which are all situated on this belt, or as isolated settlers. Many are rapidly advancing to wealth, and many—I have not the slightest doubt in the world—to beggary. Of such importance is the personal equation!

Now and again, when riding through the open forests and over the rolling pine-lands, you come upon a delightful scene of order and prosperity. Standing in the midst of long rows of orange trees, which radiate in all directions from it, you see a rambling bungalow, its woodwork brightly painted, and its

windows dark with the shadows cast by a wide verandah. Around are all the outbuildings and appointments found on a well-kept property. You are struck by the orderly character of everything. As you halt at the gate a genial, sunburnt individual comes down the drive, and, calling a negro groom to take your horse, invites you in a hearty fashion to take "pot luck." The man is an Englishman—you knew it the moment you saw him walk—no Yankee slouch about *him*. "This man," you say to yourself, "is prosperous and happy." But your surprise ceases, if surprise you felt, when he takes you into the house, and you observe the touches of refinement and taste which give to the cane-lounges and swinging hammocks a drawing-room grace, and when he introduces you to his charming wife and a bevy of fair-haired children. Your surprise ceases, I say, for is not an Englishwoman an incomparable being all the world over, and one who only adds lustre to herself when she faces a rougher life in order to share that of her husband? What wonder is it that such families as this should serve as lode-stars to the course of English migration, and attract a group of young settlers who are all the better for that perfect English home within their midst? And, I should like to add, I have not described a rarity, but a feature which is daily becoming more frequent and inevitable as the English community advances in numbers and prosperity.

On arriving at Kissimmee Lake the southern limit of the Orange Belt is reached. I do not mean to say that oranges cease to be cultivated, but that their undisputed supremacy is gone. Much of the land is unsuited for the citrus tree, and vast tracts are found where it could never flourish. We have now come to that part of Florida which I might term the sugar belt. With the increase of tropical vegetation there is a corresponding increase of low flat moist land. Both sugar and rice are cultivated here with the most satisfactory results. Two crops of rice—as in Japan—might be harvested in a year. Such grass as alfalfa grows with enormous rapidity, and—as in Switzerland—may be cut frequently. Between this locality and Lake Okeechobee is a wide area of coarse pasturage. Here are the great ranches of Florida, the cowboys, and those cow-ponies which are as distinctly Floridian as the mustang is Texan. From Punta Rassa—which is the telegraphic station to Cuba—a great export trade in beef is done with Cuba. The beef is poor enough, but as the cattle are allowed to run wild through swamps and prairies and salt marshes, and are only "rounded up" once a year for immediate export, it is not surprising.

South of this region are the Everglades, an unexplored and uninhabited territory. All we know of it is that it consists chiefly of swamp, saw-grass marshes, and many small islands of hammock character. Otherwise, it is as much a *terra incognita*

as was the basin of the Aruwimi before the last achievement of Stanley in the heart of the Dark Continent. However, the water is not salt, which proves that the surface is above sea-level, and therefore, I suppose, capable of drainage. The shoreless wastes of Okeechobee are being reclaimed, and the day will probably come when the vast labyrinth of the Everglades—over four million acres in extent—will be attacked by human energy and wrested from the rule of the malaria demon. The wild swamp land, the tangled impenetrable vegetation, the alligator that stirs the muddy water, and the mosquito that pervades the still malarious air, are features which will one and all be modified, if not improved off the face of the earth, when there is a cry for “elbow-room” in Florida.

The Florida Keys are purely tropical. They largely consist of mere islets, given over to the close embrace of the mangrove. Some, however, are covered with several varieties of tropical trees, and the larger are rapidly being utilised as natural forcing-houses for early vegetables and tropical fruit. Key West, for instance, has enormous plantations of cocoa-nut trees, and this is also the case with the extreme southern coasts of the mainland. Some of the keys are entirely devoted to the culture of the pine-apple, and you could do much worse than emigrate to one of these beautiful islands and raise your ten thousand pine-apples to the acre!

The soil of Florida is a veritable patchwork, and I will be very brief on this point. Of coralline origin and raised above the sea-level by various forces, it is not surprising that a sand *superstratum*, containing an admixture of sea-shells, was formed. With the subsequent growth of vegetation there ensued, by the process of decay, a deposit of vegetable mould or *humus*, which now permeates the open sandy soil to a greater or less extent throughout the whole surface. Although we call the soil “sandy,” it must be remembered that there is a varying proportion of lime—of coralline and sea-shell formation—and a large proportion of potash among its constituents. Soda, phosphorus, and oxide of iron also combine to make Florida soil. The sand of Florida, in fact, is not the *silica* of a sea-beach, but has a large admixture of humus, loam, and lime. The highlands of the “divides” have been upheaved from waters below the peninsula—it is believed that a vast sea underlies the land—and thus we find rock of tertiary formation in West-Central and North-Western Florida. The kinds of soil differ widely, and you may have in a 40-acre section two or three of the varieties—“a dry porous swell may be bounded at a few feet by wet land nearly impervious to water, or a cypress swale, and the rich soil of a hammock may lie beside a black-jack ridge.” Hammock-land is the highest priced, but in the long run not much better than good pine-land for orange growing. Uncleared hammock-land

is frequently half a swamp, densely shaded by the hardwood trees which grow in profusion on it, and which annually add to the dank soil below a layer of shed leaves and tendrils. Thus year after year vegetable mould is made, changing the colour of the soil from greyish-white to purplish-black; and, at last, it is by no means unusual to find this vegetable *humus* many feet in thickness. If cleared and drained, such hammock proves of great fertility; and if left in its virgin state, the wet spongy "muck" is largely used as a fertiliser. No European, however, can live on hammock-land, and it is usually injurious to his health to cultivate it. The only other soil to which I shall draw your attention is the dry pine-land—land, that is, on which the long-leaved pines grow tall and thick, and have an undergrowth of willow-leaved oak, and, in moist spots, of hickory and persimmon. This land, unlike hammock, is easily cleared, and indisputably healthful. On such land the English in Florida have made their homes and planted their orange trees. Indeed, it is suitable for any fruit trees. With these two soils it is the case of the hare and the tortoise over again, for although trees planted on hammocks grow rapidly the first few years, in the end they are no larger nor more prolific than those planted on the pine-land.

A few words as to the climate. Although it is with the Orange Belt—which lies between the parallels of 30 degrees and 28 degrees north latitude—which we as Englishmen have chiefly to deal, it must not be forgotten that much that applies to this section will apply to the whole of Florida, and that the seasons are to all intents and purposes identical, save, of course, as regards the humidity of towns situated on the sea-coast or the "keys." A straight line drawn from Jacksonville on the north-east to Tampa on the south-west will traverse the entire region of Central Florida, bisecting the parallelogram which the collective counties may be said to form.

The longest season of Florida is the summer, which lasts at least five months—from April to the end of August. Its chief drawback is its length. Five months of heat are apt to become monotonous to the Englishman who has been accustomed to about five weeks; but beyond this monotony there is no real drawback. Each day begins with an unclouded sky, a hot sun, and a still atmosphere. About 10 a.m. a breeze begins to stir among the pine-trees, which gradually increases until, about 2 p.m., it has brought up heavy banks of thunderclouds, which shortly afterwards break in a noisy tropical downpour of rain. By 5 p.m. all the clouds have passed away, the breeze has dropped, the moisture disappeared in the porous soil, and a beautiful evening, calm and deliciously cool, crowns the day. No division of the day could be better for the unacclimatised. Most of the work is done in the early hours of the morning, and

what would otherwise be the hottest part of the day is relieved by the strong fresh breeze which arises as punctually as the hand of the clock points to the hour of ten. From noon to late afternoon the fruit-grower rests within his house, or busies himself about such carpentering and other matters as may demand his attention. When the storm has cleared the air he attends to the stock, and then devotes the rest of the evening to social relaxation, for the labour of the day has come to an end and the night is clear and cool. When the stars hang overhead in an unbroken arch of brilliance, and the pine-trees cast long shadows across your garden ground; when along the low and far-distant horizon "summer lightning" rushes in rapid flashes, illumining the wooded landscape with its beautiful but weird light—then the social instincts of the colonists assert themselves, and at one house or another a dozen or so neighbours assemble, arriving in buggies or on horseback, with all the clatter and jollity of unconventionalism. In a very short time the broad verandah is crowded with easy chairs and little tables; across the shirt-sleeved groups the lamps and candles throw their light without a single flicker—so still is the air—and ray into the growing darkness of the night; and the hearty chorus of song makes the welkin ring as these "jolly dogs" shake off what scant measure of dull care the labour and anxiety of the day may have meted out, and make merry in good old English fashion under that far-distant sky.

In summer the risk of catching malaria and "chills and fevers" is much increased. The hour after sunset is a fatal time. The moment the sun sinks behind the dark plumes of the distant pines the wisest thing an Englishman can do is to retire to his bungalow and eat his dinner. The sudden cooling of the air, consequent on the disappearance of the source of heat, gives birth to the long low clouds of miasma which hang over the lakes and streams and lie upon the ground, thick as an orthodox London fog. The fermenting vegetation and receptive atmosphere is far too kindly to the "bacteria" of malaria to make it safe for man. As to minor diseases, some new arrivals suffer from prickly heat, some from sores, and some from boils; but, when once acclimatised, men seldom suffer from such attacks. Mosquitoes, sand-fleas, horseflies, and gnats are nuisances; but wire-gauze screens to doors and windows and mosquito-nets to the beds are effectual preventives—within doors—to these pests. New comers get their full share of mosquitoes for a time; but when the blood becomes thin they practically cease to annoy. Finally, it must be remembered, that *oppressive* heat is almost unknown in Florida. The "hot-oven" heat which strikes down many a New Yorker with sunstroke and heat-apoplexy is a stranger to the Florida "cracker."

The short wet autumn—which includes the months of Sep-

tember and October, and sometimes November—is decidedly unpleasant. Chills and fevers, ague and malaria, and, chief of all, the Dengue fever, are rife. This Dengue fever is peculiar to the river regions of the Southern States, and, though not dangerous, is exceedingly disagreeable. It begins with a back-ache, and then spreads to every bone in the body, the pain being sometimes excruciating. It is popularly—and graphically—called the “break-bone” fever. Some believe it arises from the prevalence of brackish water; others from careless exposure to the chilly night air of the “fall months.” However that may be, my advice is, “Don’t catch it;” and the best way of following this counsel is to refrain from introducing yourself to Florida during its autumn season.

I have already referred to the charm of Florida winters, but I would point out here that although the winter is usually reckoned from the beginning of November to the end of March, November is frequently a very wet month, and March a hot one for winter. The three middle months require no apology: they are as perfect as we can get things, I suppose, on earth. There are “cold snaps” occasionally, and sometimes more rain than one expects, but on the whole the winter is charming. It is the salvation of Florida that winter is a very dry season, and that she does not have, as California, wet and cold together. The weather closely resembles the “Indian summer” of the middle states, and there is a dryness and elasticity about the atmosphere that makes for physical enjoyment. That the Floridian winter is something out of the common may be gathered from the fact that from 70,000 to 80,000 Northerners annually come south for the sole purpose of wintering in the state. With the lukewarm waters of the Gulf of Mexico on the west and the tepid Atlantic and Gulf Stream (77 deg. Fahr. mean, with only 7 deg. range, winter and summer) on the east, it is not surprising that the sea-breezes which daily blow across this pine and palm covered peninsula should bring with them a warm and genial climate, when the whole of the northern and many of the central states of the Union are in the icy grip of a four months’ frost.

Herein lies the secret of the Florida climate. It is, I repeat, if not insular, at least peninsular. The influence of the sea moderates and equalises the temperature. An annual average temperature of 75 deg. is highly productive, *cæteris paribus*, of vegetable growth, and the isotherm of 75 deg. runs right through Central Florida. About 70 deg. of humidity is considered to be the most advantageous for producing periodic rainfall and generating atmospheric electricity, and Central Florida exactly complies with this requirement. Again, on the grounds of health, high atmospheric pressure is to be infinitely preferred to low pressure; and as on the parallel of 28 deg. at sea-level—

where the greatest atmospheric pressure is found—and with temperature at freezing point, the barometric pressure is 30·5 deg., it is obvious that the Florida average of 30·035 deg. is exceedingly good. The watershed of Florida is low, and consequently offers no obstruction to the free passage of sea-breezes; and as these winds come daily from the warm waters on either side, bringing a large amount of humidity with them, the dew point is reached by a slight depression of temperature. Further depression is thus arrested, and the temperature of day and night thereby equalised. Heavy refreshing dew and rain are the inevitable result. And further, as water absorbs heat more slowly than land, and therefore remains in hot weather comparatively cooler, the summer temperature of a sea-girt country is comparatively low. Similarly, as water parts with its heat by radiation more slowly than land, and therefore remains in cold weather comparatively warmer, the winter of a maritime country is moderated. In other words, the climate of Florida, though semi-tropical, is essentially temperate.

So many Englishmen have settled, and so many are intent on settling in Florida, that some account of the conditions under which our fellow-countrymen have already found homes and livelihood in this state cannot but be interesting. By placing before those who are still in the Old Country a description of the luck—and, I may add, the ill-luck—of their compatriots in the New, and by pointing out the more obvious causes that have determined their success or failure, I may be helping many of those who are about to migrate to the “Land of Flowers” to avoid, on the one hand, the fate of their less fortunate brethren, and to attain, on the other, a success similar to that which has been gained by the more fortunate. I may, moreover, be interesting those who have relatives and friends settled in this state.

First, then, as to the character of the average English settler. As a class, it is decidedly more fitted than not to succeed in the life it has elected to lead. The English settler is nearly always a man of superior breeding and education, and often one who is more adept at handling a gun or backing a horse than driving a quill. He is frequently a younger son of what some would call “the classes”—an army failure, perhaps, but a good fellow and with plenty of grit in him, all the same. He has often been educated at some public school, where, by strict attention to the business of athletics—and that business alone—he has made himself unfit to succeed in this country where competitive examinations are the “*open sesame*” to most of the higher walks of life. But often he has proceeded to a higher plane of education, and augmented his school training by whatever a career at the Universities can give. At any rate, whatever his antecedents, we find him in Florida a fine healthy young fellow,

with all the sturdy traditions of English virility and pluck strong within him, and in every sense of the word physically fit to push on and get on. He has, however, one drawback, and that is his lack of the power to *endure*. This inability to endure—to wait in patience while steady and continuous labour works to a successful end, to bear the burden and heat of the summer in order that the harvest may be reaped, is a distinguishing feature in the cases of failure in Florida. Many a mere lad—as the annals of English heroism amply prove—can go through perils by water and perils by land and come through with colours flying, but the ardent and restless spirits of youth seem particularly prone to succumb in face of the constant difficulty, and the long months and years which must intervene before success can ordinarily be gained in the more popular and staple industries of the state. Just as the day-to-day labouring life of the industrial classes of England fits them particularly for successful toil in many of our colonies, so the previously easy and in many cases idle existence of the younger members of the more leisured classes unfits them for succeeding in a sphere where the daily round and the trivial task are more potent in assuring success than any temporary spasm of energy, however herculean, can possibly be.

On the other hand, it may be said that the particular industry of Florida to which most Englishmen turn their attention—that of orange and fruit growing—is one in which the demands on personal labour are comparatively light—certainly, very light in proportion to the possible returns. The culture of fruit does not require the amount of labour which is necessary for the culture of grain. The fruit-grower is in every way a less-worked man than the farmer. The very nature of his work is different. While the farmer has to drive his heavy two or three horsed plough through a more or less heavy soil, the fruit-grower simply tickles, as it were, the sandy surface with a light machine, drawn by a pony or mule, and easily guided with one hand if necessary. Whereas the ground has to be deeply furrowed for the reception of seed, the surface soil of the orange grove has only to be lightly stirred in order to admit air and moisture to the lower stratum. Indeed, the roots of the trees of the citrus family, which spread out horizontally and seldom sink six inches below the surface, would be injured, if not severed, were the plough to penetrate any distance. Harrowing, again, is almost a child's task. The harrows required for fruit-growing are mere toys in size, though efficacious enough in effect. When harvest arrives the labour again is light, although the hours may be rather long—if, that is, the fruit-grower be fortunate enough to have a heavy crop. With specially made clippers he plucks the golden fruit from the branches and places it in an open receptacle at his feet. The fruit is then “sized,” packed in boxes, and

despatched to the distant markets of the frost-bound north. The same may be said of the harvesting of pear and peach crops, and of all the variety of fruit which it seems Florida's special mission to provide.

When the fruit-grower adds to his grove some acres of vegetables and the lesser fruits—such as potatoes and cabbages, strawberries and pine-apples—the work of sowing or planting, cultivating and harvesting, is less agreeable though hardly more laborious. In no case has the cultivator to undergo the toil of the farmer—his work rather resembles that of the gardener. However much there may be of it—and this entirely depends on the acreage and crop under cultivation—there is not likely to be *any* work on a grove or vegetable plantation, when once the clearing of the virgin land is complete, that cannot be easily and thoroughly done by the sturdy young Englishmen who emigrate in such large numbers to the state.

There is, however, another class of settlers which compels our attention. There are many men of mature age in Florida, who have had farming experience in England or who have been forcibly retired from our army or navy in the prime of life and the ripeness of experience, or who have worked and prospered, more or less, in various callings, and who have, in the full vigour of manhood, turned their steps to Florida in order to live a less conventional and, perhaps, easier life with a surer prospect of ultimate success. These men, it need hardly be remarked, are valuable additions to the community. They come with a ripe experience of life, with a keen realisation of the necessity to work, with a toughened temperament and a balanced judgment, and, with what is so important to a youthful country, a fair amount of capital. These men, if they once settle on the land, seldom fail. They very soon make it apparent that they have “come to stay.” Such bugbears as mosquitoes or snakes, long summers or occasional frosts, which frighten away many of the younger men, are accepted at once by the matured and more experienced. They know that in every country, and especially every new country, the drawbacks are many, and as often as not take the form of personal inconveniences. They also know that their ability to “try something else” is in inverse proportion to their age, and that the dancing will-o'-the-wisp of fortune, which allures so many of the youngsters away, has flashed too often before their eyes to attract attention now. I repeat that this class of settler is a boon to any community. It is a class which is at once the ballast and the mainstay of society, and the strongest hope of the New World to redress the balance of the Old.

I have thus far defined two classes of English settlers in Florida, and I may say at once that they embrace the great majority of our countrymen in that state. There may be other

varieties, but there is no other CLASS of men. In small numbers, and scattered haphazard over the state, there may be found some English gardeners and artisans; ex-clerks of lower grade—too often without capital and without strength or the necessary habits of life; some sturdy sons of small tradesmen, who not infrequently do better by setting up “stores” than by cultivating land; and a heterogeneous group of failures—and possibly “outsiders”—from our country and our colonies. But the Englishmen in Florida who are fruit-growers by choice, and, if I may say so, by “natural selection,” are almost to a man members of the two classes I have already described at some length. There is nothing, really, to prevent the others from succeeding, but it is a fact—and curious, perhaps, to those who study the laws of modern migration—that the conditions of life and labour in Florida have attracted the very best we can afford to spare.

It can be readily understood, therefore, that society in Florida is good. I have lived and travelled in many lands, and, with the exception, perhaps, of India—which is always an exceptional country—I have never met with such good English society as in Florida. In Canada and Australia, in New Zealand and at the Cape, you may and probably will have for your English neighbour an ex-small farmer, an ex-labourer, or an artisan. They are very good in their way, of course, and with their grand powers of endurance form excellent colonists. But it is not desirable for a man of superior breeding, and it is impossible for a gentlewoman, to associate on intimate terms, year after year, with the uneducated and unrefined. They and their families may be entirely estimable, but in no way are they desirable *habitués* of your hearth. Now, in Florida, all is different. One suffers no social ostracism in migrating thither. The English society there is the same as you have had at home. You are surrounded by bachelors or married men, in every respect your equals, who form an agreeable and sympathetic society. Those who are married have English ladies presiding over their homes, and this fact alone preserves the amenities of social custom among many men who might otherwise roughen into the vigorous but rude simplicity of the pioneer. None but those who have witnessed it can realise the amount of brightness and life, social progress, and stability that a lady brings into a colony of young men. The more wholesome of drawing-room graces revive in a moment, and the bronzed and bearded settlers add in the evening, as a corollary to their work, the refining indulgence of music—and morals!

So much for the English settler *per se*. I now come to the question, Under what conditions do we find Englishmen settling in Florida? I reply, broadly, under two—as part and parcel of a “colony,” and as isolated settlers. There has been a good deal

of talk about these colonies in Florida, and it will be desirable to give some account of them which will be at once reliable and disinterested. This latter attribute is worth something, for both Florida and the English have suffered much from the glaring pictures an interested and unscrupulous imagination has drawn. I allude to the imagination of Florida landowners and agents, and that of their romancing representatives in England. A few of the latter—you can count them on the fingers of one hand—are as reliable as men can be who have never set foot in the country and become acquainted with the conditions of life and labour in it; but more, it is to be feared, combine with their crass ignorance the ready recklessness of the rogue. In Florida itself land-sharks are plentiful enough, but one has always the protection of being able to see for oneself. Here it is different, and, owing to a too-confiding nature, many a young fellow has been allured by an unscrupulous schemer to a course that could not but end in disaster. The catastrophe—for it was nothing else—which befell a whole colony of Scotch at Sarasota is an instance in point. Had they listened with a cautious ear and accepted with considerable reserve the delightful romance spun to them; had they sent out thoroughly trustworthy representatives to survey the land and report on the prospects generally, it would have been averted, and a more desirable section chosen. But, committing themselves to the “cruel mercies” of the interested, they launched their barque on the sea of infatuation, and, naturally, sank. There are some words of advice which I would repeat while I am on this subject, and which have been worth thousands of dollars to those who have taken them: Do not buy a single acre of land until you have *seen it and walked over it*. And, I might add, Do not buy *at all* until you have been long enough in the state to judge for yourself.

I would here give a word of caution as to buying Florida property in England. All Florida lands are surveyed regardless of rivers, lakes, and swamps, and you cannot tell when you are buying a 40-acre section—and the agent who is selling it to you may not know himself—whether you are buying a solid tract of cultivable soil, or whether the half or even the whole of it be one of the much talked-of lakes. Now, in a warm climate a lake is undeniably a pleasing prospect, but it is not usually considered a suitable soil for the orange tree or a satisfactory foundation for a house! There are countless stories told in Florida of the various ways in which a would-be purchaser has fallen into the clutches of that voracious, though not veracious, monster, the land-shark, *alias* the land-agent. I will recall one for your benefit. A certain man went forth to buy, and, behold, he fell among thieves—that is to say, he was driven out of town one day by a well-dressed man in a well-appointed buggy to view a “desirable property.” After marching round the estate, keep-

ing step to the well-balanced eulogies of the well-dressed man, he was at last halted by that individual on the edge of a well. Now the word "well" in Florida admits of a twofold comparison: you may go up the scale with "better, best," or down it with "worse, worst!" The latter mode of progression is most in fashion. So, when the land-agent called to his negro groom to lower a bucket and draw up some of the element to prove it was a refreshing fountain of health, the possible purchaser was enchanted to find a pure drink of the most entrancing coldness. Clearly this ice-cold spring was worth—as, indeed, he had been assured—the money asked for the whole estate. So he bought; and when on subsequent occasions that water seemed as hot as the air above ground he felt mystified, but when he discovered that while he was "beating the bounds" of the property the negro groom had slipped a 20lb. block of ice (brought for the purpose) into the well, his feelings and his language became such that I despair of getting the Lord Chamberlain's licence to permit me to describe them!

The English colonies in Florida have not done as well as might be expected for two reasons. The first is, that as a rule they have been started too far from a centre of population to enable the members, while their fruit-trees are maturing, to support themselves by growing the small commodities which are always on demand in large towns. They have thus been starved out. The second reason is, that most of the members of these colonies are quite young, with no settled habits of work, and without sufficient stamina to persevere. Everything has made for sport and recreation, as against steady labour. The presence of that very co-operative medium which might have helped to success has tended toward another and very different end. With regard to the inappropriate location of these colonies, there is, of course, something to be said for the founder. It is necessary for success that he either own or control a large amount of land, and land cannot be bought cheap enough for his purpose near a town or a railway station. He calculates that by the time the colony has grown up both town and station will have come to him. In a country like the United States, where towns with a full complement of municipal corporations, town-halls, railway-stations, and a complete system of local corruption spring up in a year, this is a natural calculation for him to make, and the only thing to be said against it is that unfortunately it may prove to be inaccurate. The town and railroad take another line of country, and the young colony, just at the time it requires most sustenance from without, receives none. The fruit-trees are still in the unprofitable non-bearing stage, and the distance from the vegetable market discourages production for it. Too late, the colony awakens to find that it is dying of starvation. The weaker members fail, the stronger

migrate, and the residuum, giving up all hope of making a future or of even earning a living, alleviate the short lease of life that is left to them with such diversions as sport can afford.

I have known more than one colony like this. I lived for a time in a colony which, socially, was perfectly charming. It had more than fifty members, and pleasanter, jollier fellows it has not been my fortune to meet. Many were men of superior education; several were University men, barristers and the like; all were gentlemen. The elements of an agreeable society were present—there were even ladies to cap the social edifice—but the *desideratum* of a successful colony was conspicuous by its absence. There was not one member of that colony who was supporting himself by his land. There was not even one grove in the colony which was self-supporting. Many of the members had embarked considerable capital, over which they had control; but more belonged to that ubiquitous but unsatisfactory class of “remittance-men,” who, depending for the sinews of war on regular or irregular contributions from home, were by that very fact made thriftless, shiftless, and dependent. Venturing nothing, they nothing had. Having set out their orange and lemon trees and planted a few bananas, they “let Nature have her perfect work” with regard to the rest, ignoring or not knowing the stern fact that in a sub-tropical country Nature must be sharply looked after if she is to prove a helpful hand-maiden.

This colony—and there are several in the same plight—suffered from want of stimulus. Had it been smaller in extent or nearer to a town or first-rate shipping point, there would have been the prospect of earning a good living by vegetable growing or “trucking,” as it is called, and by poultry and dairy farming on a small scale. Vegetables grow prolifically in Florida, and in winter the stampede of Northerners to the state is so great that the demand is always well ahead of the supply, and prices, as a consequence, are very remunerative. It may be regarded as an axiom in Florida, that an acre well tilled within a mile of a market is worth twenty indifferently cultivated ten miles away. This distance, then, from large centres or suitable markets, is, I consider, a very powerful reason against the success of some of the chief existing colonies. And, in the same way, the want of opportunity to co-operate in industry impels the colonists to combine in sport. A large shooting party is a diversion hugely appreciated by the younger members, and however frequently such a diversion occurs it never fails to gain popular support. And in the cool of the evening convivial parties ride and drive from bungalow to bungalow, encompassing the colony till the company embraces its full strength and the entertainment assumes a boisterous plenitude. There is no objection to this, of course, but the undue prevalence of sport

and the facilities for indulging in it in these colonies is a prime factor in many cases of failure.

There are, however, several points on which a colony holds out an inducement to the English settler. First of all, there is good company, and if a man really means business and hard work he will not find it difficult to meet with some kindred spirits. Next, there is the probable advantage of a club soliciting his patronage, where he may not only read most of the home newspapers and periodicals, but even indulge in billiards and other lawful delights which serve to link him with civilised life. Then there is for his use that most precious investment of others—their experience. The seniors of the colony will be a boon to him, either for what they can tell him or for what they can show him, *or for exemplifying what he should avoid*. There is, again, the considerable advantage of living among your own people—though under another sky, still among home-folk. You can occasionally wave the Union Jack and air your Jingoism without unduly ruffling the feathers of that mightily susceptible bird—the American Eagle. There is the ability to co-operate in work for mutual profit and security, and, indeed, a dozen and more good reasons why a colony might be a very good place indeed in which to settle. Of course it must be understood that the colony selected should lie near a market, and that the individual should make up his mind to work. With these conditions, however, success may be reaped in another manner, and this brings me to the isolated settler—that is, the non-gregarious, as far as “colonies” are concerned.

The Englishman who goes “on his own hook” entirely, and will have none of such things as colonies, can always do well by settling near a good market on a small but fertile tract of land. He will plant out a small orange and lemon grove, of course, to slowly mature, and in the meanwhile he will turn his attention to “trucking,” than which few things pay better. If he is in Central and North Central Florida he will have a pear and peach grove besides. Pears pay some people just as well as oranges, though there may be more work attached to them. In the production of what he knows by experience to be the demand of his market, and in the position he enjoys of being able to convey without cost or injury his produce thither, he is a man very satisfactorily placed. Near a centre and enjoying such immunity from inconvenience as it can provide, he is enabled to gauge with tolerable certainty the appetite it is his business to satisfy, and to indulge in such risks and speculations as of his own direct knowledge he is convinced will pay. In nine cases out of ten the settler near the towns becomes what we should call a market gardener. As such, his lot is to be envied, for his outlay is small, his risk slight, his losses but temporary, and his profits large. I know men who, settling in the vicinity of such

places, are making their "pile" with satisfactory speed, and who are watching acres of orange and lemon trees slowly maturing into what will be in due course a comfortable fortune. I therefore think it better that the average Englishman, if he can trust his own common sense and rely on his own judgment, should eschew the colonies and stand on his own merits. He must not expect the market to come to him, but solve the problem as Mahomet did that of the mountain—by going to it! On the other hand, if he be inexperienced, fearful of independence and mistrustful of his own strength, let him seek out a colony situated in a favourable district and join it for the help it can give him. Undoubtedly it may temper the wind to the shorn lamb, but there is no reason whatever for undergoing any shearing or plucking process at all!

As I am somewhat carefully estimating the position of our countrymen in Florida, it may be of interest to some if I refer to what is called "the pupil system," and give a brief account of the lot our younger brothers or our sons meet with in Florida. While granting its desirability, I would, however, limit the "pupilage" to a year. In that time the lad will have worked through the complete cycle of the seasons, and have picked up a large amount of general information which should eventually be the means of saving him many a dollar. It is a mistake to extend the pupilage over too long a period; it is equally a mistake to cut it so short as to be practically useless. The sum charged by the fruit-grower for boarding and training his pupil varies from £60 to £100 per annum. I think myself—and I have particularly noted the pupil system—that £5 a month would be ample repayment for the expense and trouble that the fruit-grower is usually put to. It must be remembered that if the pupil is reasonably strong, willing to do his best, and possessed of common sense, he is as good as—aye, and a great deal better than—any ordinary labourer that could be hired. Labour all over the United States is very expensive and, in Florida particularly, unsatisfactory as well. The negroes are lazy and utterly unreliable. They require as much looking after as an infant. At the very moment when you particularly need his services—to get your crops in, perhaps, or to do something which he knows to be important and requiring immediate attention—the man to whom, perhaps, you have been kindest, will come to you in a nonchalant way and say, "I reckon I won't work to-day, Boss," and nothing on earth will make him alter his mind. It is his way of showing you that he is a person of importance and indispensable to you. Now, many English settlers have been able to dispense with this individual by resorting to the pupil system. The pupil, therefore, is an important factor, and gives as much as, if not more than, he gets. The negro's hire would run from a dollar to a dollar and

a half a day, and the fruit-grower would be saved that sum and have, to boot, a young and pleasant companion. For, as a rule, the English lads who go in such large numbers to Florida are fine young fellows—strong, active, cheery, gentlemanly. They are, on the whole, capital stuff to make excellent fruit-growers and useful members of the community. There are, of course, exceptions—sometimes glaring exceptions—and £100 per annum would be dirt cheap for these!

But why do parents withdraw their sons from some school, where they have scraped a painful acquaintance with various matters they will hasten to forget when they leave, and which they will find of little or no use to them in their new life, and *then* send them straight off, by parcel post as it were, to Florida? Surely the wiser, the kinder course is to give the lad *some* preparation for the work he will have to do. Take cooking. Hundreds of young fellows are “batching,” as it is called, in the pinewoods of Florida—that is, living together in couples or trios, and taking turns to do the cooking. The result, for a long time at least, is such that I would fain draw a veil—or a dish-cloth—over it! The concoctions which I have eaten—and, I am bound to add that, under the influence of a hearty appetite, eaten with *gusto*—concoctions, *messes*, prepared with infinite anxiety and an enormous expenditure of time, would, I am convinced, send the fond parents of the amateur cooks into fits could they only realise the case—or the cooking! Now, a course of improperly cooked food is not conducive to health, and if only from that point of view it is desirable that simple cooking be learnt—learnt AT HOME. There is no need to pay a hundred guineas a year at an Agricultural College to acquire this accomplishment, believe me. Under the head of simple cookery, I would include the baking and boiling of meats and fish, and the various ways of serving up “remainders,” by hashes, minces, stews, “resurrection pies,” and the like—the making of simple meat and vegetable soups in particular. Such pastry as meat and fruit pies require would suffice. The stewing of fruit and making it into jam would be very useful. And, perhaps, most important of all, the baking of bread. The bread of the usual “gentleman baker” is heavy and unwholesome in the extreme. Its specific gravity must be something enormous. The baking of light bread is, I am led to think, not an easy art to acquire; but the would-be denizen of the pine-forests of Florida will find his enjoyment of meals vastly augmented by the presence of good light bread. Surely it is not asking too much to demand a brief home training in the needful art of cookery for the youth who is taking flight to Florida.

After cookery comes a slight knowledge of the manipulation of needle and thread—the sewing on of buttons, which is a simple art (let me assure any young men who may be present that does

not of necessity imply the shedding of human blood or the taking the name of Jove in vain); the making a button-hole, and the arts of patching and darning. Darning is a very useful accomplishment anywhere, and worth a heap of money in the pine-woods. Again, simple carpentry is always being required. Your house, your rails, your waggon, your gates are all constantly shouting for "simple carpentry." I fear they too often shout in vain! In a word, it is only kind to prepare a young fellow for the new life he is going to in Florida. It is only economy, for it saves boundless waste; only sensible, for it prevents the folly which arises from ignorance; only wise, for it contributes to success; only parental, for it protects the child; *only English*, for "England expects every man to do his duty."

Finally, Is it worth the while of any of us to go to Florida? to follow the hundreds, the thousands of our countrymen who have already gone? My answer is in the affirmative—but with a caution. We can follow them with profit to ourselves; but it is not needful to step in their tracks. Orange and lemon growing may be suitable for many; it cannot be suitable for all. Fruit and vegetable culture demand much stability of character from the would-be cultivator. There is always this personal equation—too often, I fear, is it ignored. A man may play many parts in Florida and success may attend each. The country is ready for further development; its undoubted riches await the enterprise of intelligent men. The tannery, the chemical factory, the sawmill and the sugar-mill, and a dozen and more undertakings will richly repay their owners. The first stage of development—that of tickling the surface of the soil and reaping the first-fruits of a virgin land—is rapidly drawing to a close. The second stage—that of the application of science to the environment of nature—has already begun. Brawny hands and muscular arms have brought Florida up to date; in the future, brains will have their share. Of a certain intelligence Florida has had galore: sharpeners and schemers have waxed and multiplied exceedingly upon her. She now needs the science which is the helpmeet of commerce: the intelligence which is productive in the best sense—productive of good to the community. And she deserves it, for despite her whims, her hereditary taint, her occasional unresponsiveness, she holds in her hands the horn of plenty and the clue to a happy life. Therefore I say, "Floreat Florida!"

NOTE TO MAP.—Since the publication of this map, five new counties have been formed: Citrus County, formed from the northern part of Hernando County; Pasco County, from the southern part of Hernando County; Osceola County, from the south of Orange and west of Brevard Counties; Lake County, from the north of Orange and east of Sumter Counties; Desoto County, from Eastern Manatee; and Lee County from Northern Monroe. Of these Lake County is by far the most important as regards orange culture.

ON THE TEACHING OF ELEMENTARY COMMERCIAL
GEOGRAPHY IN PRIMARY AND SECONDARY
SCHOOLS, AND IN A MINOR DEGREE OF ELE-
MENTARY TECHNICAL INSTRUCTION.*

By Mr. J. H. SILBERBACH, of Liverpool.

[Addressed to the members of the Society, in the Memorial Hall, Albert Square, on
Wednesday, June 5, 1889.]

INTRODUCTION.

VERY little is known to the dwellers in our seaport towns, and still less by those who live inland, of the various articles of produce which are daily landed on our shores; and even though their names may be known, the objects, unless very common indeed, are not.

With a view to making these objects better known, and to cause the teachers and children of our elementary schools to take an interest in them, and not only in them but in the countries from whence they come, it occurred to me that if they could be arranged in cases, geographically, a great impetus might be given to the study of Geography.

The cases which you have before you are the outcome of that idea, and you will notice that the specimens are grouped, as far as possible, under various heads—as, for instance, Food Products, Oil Producers, Gums and Resins, Medicines, Dyes and Colours, Earth Products, and so forth.

The cheap and useful maps which are now issued by most of our leading publishers are a marked improvement on those of bygone years; and yet, with all the advantages gained through their use, children know very little of practical commercial Geography.

These cases will, it is to be hoped, meet a need, and cause more interest to be taken, not only by children, but by teachers also, in the study of Geography. The idea of impressing on the minds of both teachers and children the names and uses of

* Prior to the delivery of the address, a number of cases were shown representing various countries, each case containing specimens of the leading products. Cases were also shown of various raw materials, specimens in the intermediate stages of manufacture, and also in the finished state. The set was part of a large collection which is being formed and is intended for use in elementary schools connected with the Wirral Church Managers' Association, and arranged by Mr. Silberbach, who is one of the honorary managers of the Wirral Diocesan Schools.

imported objects in this way is really a development of the Kindergarten system, and, like that system, uses the eye as an aid to the memory.

With a view of making the cases of utility to the teachers, it is my intention to issue with each case a handbook, giving a short account of the country it represents, and its climate, together with a list of objects grown and their uses. The teachers will then give such information to the children as they may think best—not overtaxing them—for it must be clearly understood that the idea is to ease the teachers' work, and not to make it heavier. The tests which the geographical cases in their incomplete state have undergone have been eminently satisfactory, and both teachers and children have benefitted. The monotonous repetition, which left the child at the end of the lesson very little better for the instruction, has given way to a lively interest in the objects and their uses, and inquiries made some time afterwards prove that lasting impressions had been made on the minds of the children.

The teachers' work has also been lightened, because the interest of the children has been aroused and sustained, and what before was simply a lesson becomes a pleasure instead of a toil.

The plan of instruction adopted has been to group the children, say fifteen or twenty, around the case. The objects are then passed round one by one, so that each child can see or feel for himself; and whilst the specimens are being exhibited the teacher explains, in a simple way, their nature and uses. A map of the country is attached to the box, but in schools which have the advantage of large maps of each country it will be better to use them.

I found it difficult to show fruit, and decided that wax models would represent some kinds, but the larger varieties I was obliged to leave out as the models were too large and pictures too expensive.

In the arrangement of these cases my difficulty has been to keep the number of specimens within bounds, for as the work progressed, one improvement after another suggested itself, so that the fear naturally arose as to whether the cases would be large enough, and it is not desirable to increase the size materially unless they are to be kept in one place.

For instance, to show specimens of timber of such size as to give a proper idea of the grain would be simply impossible, and as the import of timber is a very important branch of our commerce, I decided that it would be better to show small pieces such as you have seen rather than leave them out.

Another question that arose was that of metals; and with a view to making this part of the work more interesting I decided not only to show a specimen of the metal, but also of the ore

from which it is taken, and thus a short step is taken in the direction of geology.

A further step will be taken when the imitation jewels are obtained and classified, which I am trying to obtain; and as the handbook tells the rock from whence they come, a further interesting lesson in simple geology will be given.

The following cases are either partially or altogether completed: Austria, Australia, Argentine Confederation, Australasia, British Guiana, British Columbia, Mexico, Belgium, Holland, Switzerland, North Africa (including Egypt), West Coast of Africa, South Africa (including Cape of Good Hope and Madagascar), China, Chili, Canada, Central America, Ceylon, Denmark and Iceland, Norway and Sweden, Turkey in Europe, Turkey in Asia and Arabia, France, Spain and Portugal, Germany, Russia in Europe, Russia in Asia, Italy, India and Ceylon, Japan, Peru, Malaysia, Melanesia, West Indies, United States, Mediterranean Islands, New Zealand, Indo-China.

In many cases, where the countries are small, or where the products are very similar, as, for instance, Spain and Portugal, Holland and Belgium, the products of two countries have been placed in one box; and a very interesting lesson can also be given by grouping the cases together of countries lying in the same zone.

When the cases were first arranged, I published a small handbook, which was really a catalogue of the collection then exhibited, intending it to be a guide to teachers when showing the specimens, but as it was arranged hurriedly, and is imperfect, I decided to go more thoroughly into the work and arrange a complete handbook, in parts, so that each case would have a book of its own, giving some account of the country it represented, together with a fuller account of the objects shown.

Your secretary suggested that the West Indies would be a subject which would be of interest to you, and I have adopted his suggestion, and will now, with your permission, give some extracts from the handbook intended for that box, and in doing so desire to make it perfectly clear that only such extracts as will interest the children are to be given when the boxes are shown, the handbook being intended in the end for a wider audience, and for use when teachers are instructing pupil-teachers.

• THE WEST INDIES.

The term West Indies is applied to the Archipelago which constitutes the eastern boundary of the Gulf of Mexico and the Caribbean Sea. The name was given by Columbus, and was for a while synonymous with America. They are divided into three groups, the Bahamas, the Greater Antilles, and the Lesser Antilles.

The Greater Antilles consist of the Caymans and Jamaica (British), Cuba, Isle of Pines, and Porto Rico (Spanish), and Hayti (Independent).

The Lesser Antilles consist of the Windward or South Caribbee Islands, Barbados, Grenada, St. Lucia, St. Vincent, Trinidad and Tobago (British), and Martinique (French). The Leeward or North Caribbee Islands, consisting of Anguilla, Antigua, Barbuda, Dominica, Montserrat, Nevis, Saba, St. Eustatius and St. Christopher (British), Desirade, Guadeloupe, Marie Galante, St. Martin, and Les Saintes (French).

HISTORY.

Columbus discovered many of these islands, and gave names to them in 1492. Afterwards the Spaniards extended their investigation and took possession. Their fertility was unbounded and gave sustenance to an immense number of natives, estimated by some as high as five to six millions. These natives received the Spaniards with kindness and hospitality, which met with the most cruel ingratitude in return, and eventually they were almost exterminated, and at the instance of Las Casas, negroes were imported to supply their place, and now the original inhabitants are extinct, excepting a few Caribs on St. Vincent and Trinity.

The first English vessels which visited these islands were under Sebastian Cabot; and in 1536 the French followed suit. From this time onwards a desultory warfare was carried on by the English, French, and Dutch against the Spaniards, and these nations effected settlements on many of the islands. From 1629 to 1650 many of these settlers were captured by the Spaniards, some being condemned to work in mines, and others were massacred. Charles the First was unable to check these proceedings, and peaceable colonisation was hindered, but in 1655 Cromwell sent out a fleet, and many of the islands were added to our possessions. The demand for tropical productions, and the suitability of these islands for their growth, afforded means for the rapid acquirement of wealth. The cupidity of the early settlers caused them to follow the example of the Spaniards and import negroes, by whose blood and sweat the commodities were raised, and their owners enriched, the annals of these islands from 1492 to 1816 present a melancholy history of calamities and crimes. This was especially the case in Jamaica, where the sudden acquisition of wealth by the English planters, tempted them into great excesses. All moral law was set aside, the slaves were treated with the greatest cruelty, and a series of struggles commenced between the oppressed race and their tyrants. The evils of slavery, and the reign of immorality which existed in the island, stirred up in

England a feeling of anger against the planters, which finally resulted in the emancipation of the slaves in 1838. The slaves when freed, refused in most cases to work for their former masters, and as the latter had mostly squandered their money, the estates gradually fell into the hands of mortgagees, and the staple industry of the island—sugar—was paralysed. Afterwards, the introduction of new planters, with capital, caused an increase in the sugar-producing capacity of the island, but it has not attained the same degree of prosperity as before, many plantations remaining idle.

The tendency of late years has been to export sugar to the United States, and the probability is, that with an increased demand in the States, there is room for an increased output from the West Indies; but to compete successfully the very best processes must be adopted.

With regard to Gaudeloupe and Martinique, the chief French islands, these are very prosperous—a result which is largely attained because of the introduction of the most modern processes and the adoption of the central factory system for preparing the sugar.

It is generally admitted that 13s. to 14s. per cwt. will pay those planters who adopt these improved methods of cultivation, and at present prices the production ought to be materially increased.

Cuba has passed through almost the same phases as the British West Indies. Most of the old proprietors have been made bankrupt, the land has fallen heavily in value, and has fallen into new hands, who, by the introduction of the central factory system, have been able to hold their own. The old method was for each cane grower to work up his own sugar and rum, but in the new system the planters send their canes to a central factory to be dealt with. This system was originated by the French beet farmers, and has been extended into the French West Indies, a large factory having been established at Point a Pitre, costing £216,000, and capable of turning out in the first six months of the year 8,000 to 10,000 tons of sugar.

It would be impossible, in the course of this paper, to give details as to the method of working, but the centralisation of the work naturally leads to great economy. I have dealt somewhat at length with this industry, because it is the largest in most of the islands excepting Trinidad, where cocoa is produced in great quantities.

It will take up too much time to speak in detail respecting the geographical position, size, climate, and products of each of the islands.

I will now simply give you some few examples of the style of information which is given in the handbook respecting each of the products in the cases.

PRODUCTS.

The most important is sugar, which forms the staple commodity of the islands.

SUGAR.—Sugar is chiefly produced from a gigantic grass belonging to the genus *Saccharum*, from beet, from maize. Most varieties of sugar-cane have probably sprung from one species called *Saccharum officinarum*, but authorities are not agreed on this point. (1) The Bourbon cane came originally from Malabar, was transported from thence to the island of Bourbon, where it greatly improved, and afterwards was imported into the West Indies. (2) The Otaheite canes are two, the purple-striped and the straw-coloured. These two and the Bourbon are now so mixed together on the West Indian estates that it is a matter of difficulty to distinguish them. With a good soil and season the plants grow to the height of 12 or 14 feet, and 6 inches in circumference, and the yield is about 2½ to 3 tons per acre. The Batavian canes are four in number, but do not produce so much per acre as the Bourbon, and are of slower growth. The East Indian canes are juicy and sweet, and produce a fine-grained sugar. They flower when eight months old, and can be cut down and manufactured when ten months old. These canes are all red, and are equalled in yielding power by the black and yellow Nepaul canes. There are several small-sized canes in India, the most common being the Kajlee and Pooree, but they are much inferior to our colonial kinds. The Chinese is a hard and solid cane, which withstands drought well and produces crops even to the third year, but the Indian canes are renewed annually. The "elephant" cane, of Cochin China, grows to the height of 11 feet, but is only cultivated for eating and chewing, but would probably prove a good sugar-producing cane if transplanted. In five or six years it reaches the height of from 16 to 32 feet, when it is simply allowed to grow as an ornament in the gardens. Eight kinds of cane grow in the Straits Settlements, the foremost being the Salangore, which is one of the finest canes grown, attaining a weight of 25lb., and a height of 13ft., the yield being as much as 80,000lb. to the acre, as against 21,000lb. to 32,000lb. from ordinary canes. The South Pacific Islands are regarded by some as the home of the sugar-cane, and there are many forms which are strictly local. These canes produce more sugar than the bulk of our colonial canes. The sugar-cane thrives best in a moist, warm climate, with intervals of hot weather tempered by sea air, its most luxuriant development being on islands and sea-coasts, especially in the tropics.

BATATA is a root, originally found wild in the Malayan Archipelago, which has become dispersed over the warmer parts of the world, and is used instead of the potato. It is mealy, sweet, and wholesome.

PLANTAIN (*Musa sapientum*) is a delicious fruit yielded by a plant growing 15 or 20 feet high, found in most tropical countries. It closely resembles the banana, the fruit growing, in favourable situations, to a great size, a bunch, containing 160 to 180, weighing 66 to 88lb. It is generally cut unripe, is skinned, then roasted, and served up as bread. It is also used for fattening domestic animals.

BANANA (*Musa iparadisiaca*).—This delicious fruit is to the inhabitants of the torrid zone, together with the plantain, of which it is a variety, what corn is to Europeans, or rice to the Chinese and East Indians. The plant grows quickly, and the fruit, when ripe, is exposed to the sun and dried like figs, and then forms a wholesome food. Meal or flour is obtained by cutting the fruit in slices, and afterwards it is dried and pounded. The same extent of ground in Europe under wheat as would furnish subsistence for two persons, would, in Mexico, under the banana, furnish food for fifty. This fruit, of late years, has become very popular in England. The leaves, which are two yards long and a foot wide, are used as food for hogs and as napkins and table-cloths. In the Philippines a wild banana (*Musa textilis*) furnishes a textile material made into cloth and cordage known as Manilla rope (Humboldt).

ARROWROOT.—A farinaceous substance obtained in America, the West Indies, and Ceylon, from the root of the *Maranata arundinacea*, and in India from the tubers of *Curcuma angustifolia* (Waterson). It is prepared by grating the tubers into a pulp. It is then strained, and passed through successive waters and sieves until purified. The pure farina then subsides from the milk-like fluid, the moisture is evaporated by exposure to the sun and air, and the flour, when dry, is packed in boxes or casks, where it will keep good for years. Being easy of digestion, it is much used for invalids, and for young children. It is mixed with boiling water, or milk, in the form of puddings.

TAPIOCA (*Manioc*) is a nutritive substance prepared from the roots of the cassava plant, *Jatropha manihot*, which are pressed, dried in chimneys, and powdered into flour. This plant, when eaten whole, is rank poison, its effect being almost as rapid as prussic acid. For shipment it is dried on hot plates, becomes granular, and is used in a similar manner to sago and arrowroot for making puddings.

RICE (*Oryza*).—The common rice (*O. sativa*) is still found wild in Hindustan; and though the produce is small the grain is carefully gathered, and sells dear, being esteemed as a dainty by rich Indians, who boil it in steam. Rice is largely grown in the East Indies, particularly in the south, where it forms the staple food of the natives, but in Northern India, wheat is the principal crop and food. It is also largely grown in China, where it forms the staple food. Rice requires intense heat and

much moisture, the fields requiring to be frequently laid under water—hence the great necessity for irrigation works in India, where a dry season means a poor yield and consequent famine. Burmah, Java, Carolina, and South America furnish a large proportion of our supplies, as well as India, and a fine kind is sometimes imported from Japan. Rice has been introduced into Carolina, Georgia, the West Indies, Central and South America, and in Europe, into Lombardy, Valencia, and some of the districts bordering on the Mediterranean.

YAM (*Dioscorea*), belongs to an order of plants of which many are poisonous, the West Indian yam being an exception. In the East Indies they grow to a great size, some tubers weighing as much as 30lb.

TAMARINDS.—This fruit is the product of the East and West Indian tamarind trees, the former being the largest. In the East the pulp is dried, either artificially or in the sun, and mixed with a little salt. The West Indian is put into jars in layers, with sugar between, or boiled syrup poured over. In warm countries they are used in making refreshing drinks, and the black tamarinds in the preparation of tobacco. The pulp is a cooling laxative medicine, much valued in fever.

POMEGRANATES are the product of a low tree, the *Punica granatum*, common in the warmer parts of the temperate zone. The fruit is about the size of the orange, the rind a light brown, and the inside full of seeds covered with a sweet juicy pulp. This fruit is chiefly imported from the West Indies, the southern parts of Europe, Syria, and North Africa. It is much esteemed in hot countries, and of late years a large quantity has been imported into Great Britain.

ORANGE (*Citrus aurantium*).—This tree or shrub was imported by the Portuguese into Europe from India and China in the fourteenth century. The sweet oranges, so abundant in our market, are chiefly imported from Spain and the Azores, but the demand is so great that large quantities are also imported from Portugal, Italy, Jaffa, Brazil, the West Indies, and a blood-red kind from Malta. The peel is used in confectionery, a light wine being also made from it, and from the flowers a perfume called "Neroly" is obtained, which is used in making Eau de Cologne (Rimmel). From the leaves an essential oil is obtained, called "Petit-grain," and from the rind an essence called "Oil of bigarrede." Bitter oranges (*Citrus bigarradia*) come from Seville, and are largely used in making marmalade. *Varieties*: (1) The "China" orange. This is the common orange of the market. It is round and smooth, with a thin, golden-yellow rind. (2) A pear-shaped orange, with a thick, smooth rind, a rare sort, not much known in the markets. (3) The "Orange of Nice," which is grown largely about that city, is rough, thick-skinned, and is considered one of the best, both

for size, productiveness, and quality. (4) The "Tiny-fruited" orange, with a thin, smooth rind. Supposed to have come from the Philippine Islands. (5) The "Fingered" orange, an ovate fruit with a thick rind. (6) The "Blood-red" orange, originally from the Philippines, with a medium-sized, round, rough fruit, the inside yellow, knotted with crimson. (7) The "Ribbed" orange, a tender variety of little value. (8) The "Sweet-skinned" orange, known in Paris as the "Forbidden Fruit." It is a heavy fruit, with a deep-yellow, smooth, thick, sweet rind. This is an extremely agreeable fruit. (9) The "Mandarin" orange, originally brought from China, is now cultivated in Malta. This is one of the finest varieties raised. (10) The "Saint Michael's" orange. This is one of the most productive and delicious of all oranges, and is imported in large quantities from the Azores.

LEMON (*Citrus*).—This is another variety of the orange family, a native of Eastern Asia, from whence it has spread to Italy, Greece, and Southern Europe, and to the West Indies. Its juice is analogous to the orange, but contains more citric acid and less sugar. The citric acid, which is extracted, is an approved specific against scurvy, and is used to make many pleasant drinks. The rind is a bitter aromatic, is used for stomachic tinctures, for preserves and liqueurs. It also yields an essential oil used in perfumery.

MILLET (*Holcus*) is an annual plant or grass, growing sometimes to the height of 20ft., the stalk being filled with saccharine juice. It thrives best on sandy soil, requiring little labour or manure, and is most prolific in warm climates. It is largely grown in Spain, Italy, Switzerland, the southern parts of Germany and France; also in the East Indies, China, Arabia, Syria, Egypt, and Nubia. In the West Indies it has been introduced, and is known by the name of Guinea corn. In the East it is used as human food, but in Europe, though sometimes used as food, it is chiefly used in feeding poultry and domestic animals. The leaves form fodder for cattle.

MANGO (*Mangifera*).—There are many varieties of this fruit, but the best is the *M. indica*, from India, which is imported as a pickle. It is also cultivated in the West Indies.

GUAVA (*Psidium*).—*P. moniforum* is a native of the West Indies and South America. *P. montanum* is a native of Jamaica. These tropical trees or shrubs produce guava, which is eaten raw or shipped to Europe as a jelly. The wood, very hard, of a fine colour and grain, works well, and takes a good polish.

CACAO or COCOA is obtained from the seeds of a tree, *Theobroma cacao*, order *Sterculiaceae*. The seeds are oval, about the size of an olive. When bruised they form the cocoa of the shops, and when reduced to a paste, mixed with sugar and

vanilla, form chocolate. They are imported from Venezuela, Ecuador, Guayaquil, Brazil, and the West Indies. It is also cultivated in the Philippine Islands.

COFFEE is the berry of the *Coffea Arabica*, an evergreen shrub, which grows to the height of 8ft. to 15ft. The flower is like the jasmine, the fruit like a small red cherry, enclosing two of the oval seeds, covered with pulp, which form the coffee of commerce. The plants produce fruit when two years old, but the best is from those which are four to five years old. The shrub is indigenous to Abyssinia and to Arabia, where it is best grown; but it has been transplanted to many tropical countries, viz., the West Indies, South America, Java, Ceylon, India, Porto Rico, Sumatra, Bourbon, the Philippines, Cape of Good Hope, West Coast of Africa, and East Africa. We have no record of the first introduction of coffee as a drink, its use for centuries being confined to the East; but in the fifteenth century it was drunk in Aden as a refreshment, afterwards it was introduced to Cairo, and in 1554 to Constantinople, and this in spite of bitter opposition in both cities. The first coffee-house in London was opened by a Greek in 1652, and the number soon increased. The *cafés* of the present day bear witness to the advance of the temperance cause, and are a standing monument to this philanthropic movement.

PEPPER.—*Black Pepper*, the most important of all spices, is the product of a climbing plant (*Piper nigrum*), and is extensively cultivated in Malabar, from whence comes the best variety, Java, Sumatra, and neighbouring islands. The plants bear in their fourth year, are best at their seventh, and then decline. The culture is not difficult. Two crops are yielded annually, and are gathered before ripening. At first of a bright red, by drying in the sun the berries become black, and taste hot and fiery. White pepper is milder, and is produced from the same plant when ripe. It is freed from its dark coat by maceration in water. *Pepper (Long)* is produced from a climbing plant grown in the East Indies, the berries of which are small but exceedingly hot. *Pepper (Cayenne)* is a mixture of the powder of the dried pods of different species of capsicum, chiefly Spanish pepper and bird pepper, natives of South America and the East and West Indies. This is red in colour, very fiery and acrimonious, and is used chiefly as a condiment, and also in medicine, and in curry powder. *Pepper (Guinea)* is made from the aromatic seeds of *Agrana paradisi* and *A. grandiflorum*, found on the West Coast of Africa. It is a powerful stimulant, and is used for the same purpose as cardamons.

GINGER is the product of *Zingiberaceæ*, herbaceous plants which inhabit China, the East and West Indies, Africa, and America. There are two varieties, the black and the white, the former being inferior. The black ginger roots are immersed in

boiling water and then dried. The white ginger consists of the best and roundest roots, which are peeled fresh and dried in the sun. The best preserved ginger which is sent to this country is prepared from the young roots, and is of a light-yellow colour. The Chinese preserve it dry, and use it largely as a condiment.

CASSIA.—There are a large number of species of this plant. The bark resembles cinnamon, and is believed to be indigenous to China, but is also cultivated in the Eastern Islands and the West Indies. *Cassia buds* are produced by the same plant as the cassia bark, of a dark-brown colour, and in flavour and taste are like cinnamon. *Cassia Oil*: This extract of cassia is acrid and pungent, and has an agreeable odour. *Cassia fistula* is like a laburnum, and is found in India and Africa. The leaves and flowers are purgatives. *Cassia acutifolia* grows in Egypt, Sennaar, and Abyssinia, and is the Alexandrian senna of commerce. *Cassia lanceolata* is from Arabia, and is known as Mecca senna. *Senna* is a valuable purgative.

CLOVES are the unexpanded dried flowers of the *Caryophyllus aromaticus*, a native of Molucca, but now it is grown in many of the neighbouring islands, and in Guiana, Brazil, and the Mauritius. The best are from the island of Amboyna, and should be large, heavy, and brittle, exuding oil when pressed, and their taste warm and acrid. The tree grows to the height of 15 or 30 feet. The leaves are aromatic, and the flowers very fragrant. *Clove Oil*: This oil has the flavour of the clove, but is milder, is of a deep red colour, and is a powerful stimulant.

CAPSICUM. (See Chillies.)

PINEAPPLE.—The succulent fruit of a tropical plant, indigenous to the West Indies and South America, but naturalised in the hot regions of Asia and Africa. It was brought to Holland, and from thence to England in 1690, and the cultivation has been brought to such a pitch of perfection that the hothouses of Great Britain provide more luscious fruit even than the tropics. They are grown very freely in the West Indies, and can now be bought in the English markets at low prices.

PIMENTO, or ALLSPICE (*Eugenia pimenta*), is the fruit of a tree common to Jamaica, the berries of which are gathered before ripening, and are dried in the sun. The name of allspice is given because the flavour resembles cloves, nutmegs, and cinnamon; and it is also called Jamaica pepper, because it is chiefly grown in that island. It is largely used as a seasoning, but also as a medicine.

The **NUTMEG** is the product of *Myristica Moschata*, a native of the Moluccas, but afterwards it was introduced into Sumatra, Java, many of the neighbouring isles, Guiana, and the West Indies. The tree bears fruit when ten years old, which improves in

quality during a century. The fruit is of the size of an apricot, pear-shaped, and as it ripens the rind opens, displaying the nutmeg encased in a network of mace. The nutmegs are gathered two or three times a year—the third period yielding the best—and when dried in the sun are steeped in lime water to preserve them. The Dutch have almost a monopoly of this spice, and its introduction has been very slow elsewhere.

MACE.—The outer covering of the nutmeg has the same odour, but is more pungent. It is used sometimes medicinally, but chiefly as a condiment.

NUTMEG OIL is used for medicinal purposes.

CHILLIES are pods obtained from the *Capsicum frutescens*, cultivated in the East Indies. These pods contain many small seeds, pungent and fiery to the taste, and are used as a condiment. They are used to make cayenne pepper and curry powder. The capsicums used in Europe are from a wild species growing in the West Indies and South America.

ALOES.—A bitter juice extracted from a plant of the same name, and used as a purgative both for men and horses. Socotra, Cape Colony, Barbados.

ALOEWOOD is found in Assam, Cochin, and China, and being saturated with an aromatic resin, is much esteemed as an ingredient in incense as well as medicine.

CASTOR OIL is obtained from the seeds of the *Ricinus communis*, a plant which grows in America, Southern Europe, the East and West Indies, and which probably came originally from Africa. It was familiar to the Greeks and Egyptians. The oil is crushed from the seed in an hydraulic press, and, after heating with water, is strained through flannel and put into canisters. The best is called cold-drawn, and is used as a mild aperient. It is also used for machinery, but is not suitable for fine machinery, because it is too thick. The largest quantity imported is from India.

CROTON OIL is the extract of the seed of the *Croton tiglium*, a native of India, Ceylon, and the Moluccas. The seeds are the size of a marble, and are enveloped in a small shell. These seeds are the strongest purgative known.

CROTON (*Cascarilla*).—The bark of this croton is also used as a medicine, and is imported from the Barbados and the Brazils.

COCHINEAL.—A rich red dye obtained from the female of an insect *Coccus cacti*, a native of Mexico, which feeds on the *Cactus opuntia*. The insects, after being collected from the plants, are killed in boiling water, and then dried when they are like small grains. They yield a beautiful scarlet colour, and are chiefly used in dyeing wool. Now our chief supplies come from the Canary Isles.

PITCH is a substance made by melting resin with a portion

of tar, and is also found in a natural pitch lake in the island of Trinidad in the West Indies.

CEDAR (*Abies*).—The cedar of Lebanon is a species of fir, and its qualities have long been famous. Those which remain are about nine feet in diameter. The Indian cedar, or deodar, is a noble tree, which grows in the Himalayas at an elevation of from 4,000 to 10,000 feet. Gamble says it is the most durable of Indian conifers, and is used for railway sleepers, bridges, furniture, and for shingles. An oil is obtained from it which resembles crude turpentine, which is used as medicine for ulcers and eruptions, &c. Another cedar (*Cedrela toona roxb.*) the toon tree, grows in Bengal, Assam, Burmah, to a great height, 80 to 100 feet of clear stem being often seen. It is known in the market as Moulmein cedar, and is durable, being suitable for door panels and carving. It is of a brick-red colour, and though soft does not split or warp. The Atlas cedar (*Cedrus atlantica*) grows on Mount Atlas, and is of a similar grain and strength to *Cedrus deodara*. Another cedar (*Callistris arborea schrad*) is a native of the Cape of Good Hope, but only grows to the height of 20 feet. It is useful for ship and house building as well as cabinet work. The red cedar (*Cunonia capensis*) grows to the height of 60 feet, the wood being tough, close grained, and taking a good polish. It is used by cabinet makers, turners, and wheelwrights. The Bermuda cedar (*Juniperus Bermudiana, L.*) is another variety. *Cedrela toona roxb. woolia* (red cedar) is a tall handsome tree growing in Queensland. This is the best known and most valuable wood in New South Wales. It is easily worked, very durable, and a good specimen is equal in appearance and quality to the best figured mahogany. A tree is said to have been cut down yielding 30,000 feet of saleable timber. *Melia composita* (white cedar) is found in North Australia and Queensland. The wood is soft and easily worked, and is used chiefly for shingles. *Synoum glandulosum*, or pencil cedar, grows in Queensland to the height of 70 to 100 feet. This wood is scented, and when fresh is of a deep red colour, being used for cabinet work and in shipbuilding.

LIGNUM VITÆ (*Ixora triflorum*) of British Guiana, grows to the height of 30 to 60 feet, and is 16 to 18 inches in diameter. It is a hard, valuable wood, used for mill cogs and shafts, and for ships' blocks, &c. It is also found in Jamaica, Hayti, Cuba, Columbia, and Venezuela. Hickory Lignum Vitæ is found in Queensland. The wood is hard and close-grained. The bark contains tannin, and is used by the natives in making embrocations to cure cutaneous diseases.

LANCEWOOD.—This tree (*Guatteria virgata*) is indigenous to Jamaica, and is highly valued, because it exceeds even ash in lightness, strength, and elasticity, and is consequently of value in carriage shafts, spears, bows, and similar purposes. It turns

well, and is neither so light in colour or so close-grained as box.

DYEWOODS.

LOGWOOD (*Hæmatoxylon Campechianum*) is grown chiefly in Campechy and Jannaica. At one time it was largely used as a dye for compound colours, greys, and blacks, but latterly this, like many other natural dyewoods, has given place to chemical substitutes.

FUSTIC is a dyewood obtained from a species of mulberry, *Morus tinctoria*, a native of the West Indies and tropical America. The yellow dye which is obtained from it is durable, and is chiefly used in compound colours. There is another kind, the product of *Rhus colinus*, a native of France, Italy, and Greece, which also produces a yellowish orange dye.

MAHOGANY.—This beautiful cabinet-wood is the product of the *Swietenia mahogani*, a native of the West Indies and Central America. It is found chiefly in the rich valleys of Cuba and in Honduras, and is supposed to take about two hundred years to mature. There are two kinds, baywood, which comes from America, and Spanish mahogany, which chiefly comes from Cuba and Hayti. The first is used for inferior work, and the latter for the best veneering, taking a beautiful polish, and improving with age. Another mahogany, called red speke wood, comes from South Africa, and is durable for outdoor work. Mahogany also grows in British Guiana. Booa mahogany, a tree which grows from 60 to 130 feet high, yielding a durable wood, grows in Australia, and is a species of eucalyptus. Another mahogany, *Tristania suaveoleus*, grows in North Australia and Queensland to the height of 100 feet. The wood of this tree is durable if used in wet situations.

SATINWOOD.—A moderate-sized deciduous tree, which produces a hard beautiful wood, which takes a splendid polish, and in England is used for cabinet work. In India it is used for furniture, agricultural implements, carts, oil mills, &c.

SNAKEWOOD or *Nux vomica* is a tree or shrub growing in India and Burmah. It is used for carts and agricultural implements. Strychnia is obtained from the seed.

COTTON.—*Gossypium barbadense* is a shrub growing to the height of six to twelve feet. The fibres are long and fine, and separate easily from the seed, and they are sufficiently delicate to be spun into a fine thread. It was from the seed obtained from the West Indies that the celebrated Sea Island cotton is grown. In the last century our largest supplies of cotton came from the West Indies and South America, and it was not until about 1791 or 1792 that cotton was cultivated to any extent in the United States. Now the cultivation of cotton has almost been abandoned in the West Indies, owing to the cheaper

rate at which it can be grown in the United States and elsewhere.

GEOGRAPHY OF THE ISLANDS.

JAMAICA, the principal British island (the Tayamaca of the aborigines), is 143 miles long by 40 to 45 miles broad, and is 4,000 miles south-west of England, with an area of about four million acres. The chief town is Kingston, and the only navigable stream is the Black River. The Blue Mountains occupy the middle of the island, with an elevation of from 5,000 to 6,000 feet. There is a coast line of 500 miles, and there are nearly 100 harbours, coves, and creeks, so that the want of rivers is not felt. The soil is productive, and all the richest plants of the tropics thrive and yield abundantly. Sugar is the staple product, but arrowroot, coffee, cocoa, indigo, cotton, ginger, turmeric, ipecacuanha, mango, tobacco, aloe, nutmeg, clove, cinnamon, pepper, China grass, Assam tea plant, oranges, pineapple, banana, plantains, cinchona, Indian corn, Guinea corn, rice, yams, cassava, sweet potatoes, and a great variety of fruits. The woods are mahogany, satinwood, cedar, logwood, fustic, and many other kinds. The earth products are iron, copper, lead, cobalt, zinc, manganese, limestone, barytes, marble, gypsum, lignite, iron pyrites, lithographic stones, and coal. The island was discovered by Columbus in 1494, and was afterwards captured and colonised by Cromwell, the English continuing the policy of importing negro slaves which was commenced by the Spaniards. In 1775 the population consisted of 12,737 whites, 4,093 free negroes, and 192,787 slaves; and from 1791 to 1807 the average importation was 9,000 per annum, whose market value ranged from £30 to £50 per head, the excessive cheapness of this labour making it more profitable to import than to rear them.

BARBADOS is about the size of the Isle of Wight, being 21 miles long by 12 broad, and has a superficial area of about 166 square miles. Population 170,000. It is supposed to have been discovered by the Portuguese in 1518, but was taken possession of by Sir Olive Leigh, in the name of King James of England, in 1605. A heavy duty of 4½ per cent on exported articles, which was imposed in Charles the First's time, and which was only finally repealed in the present reign, tended to retard the prosperity of the island. The climate is salubrious, the soil varied, being in some places light and sandy, and in others of a rich black earth. Its chief products are sugar, molasses, rum, cacao, coffee, aloe, cotton, arrowroot, &c. This island being flatter than most of the islands is well cultivated.

St. LUCIA lies about 90 miles to the N.W. of Barbados, and covers about 160,000 acres. Population 32,000. For many

years France and England contended for its possession, and the point was not settled until 1804, when it was captured by Lord Hood. It is a beautiful island, divided by a lofty range of mountains, clothed with trees, and its valleys and alluvial plains are covered with a deep vegetable mould. It has had a bad reputation for salubrity, but since better drainage has prevailed, the health of the people has improved. The island will produce sugar, tobacco, ginger, cotton, and many other tropical products, whilst the splendid harbour of Castries affords facilities for their shipment.

ST. VINCENT.—This picturesque island lies 22 miles south of Grenada, is $18\frac{1}{2}$ miles long by 11 broad, and contains an area of 84,000 acres. Population 36,000. After various attempts to settle on this island, on the part of the French and English, it was captured by the latter power in 1762, recaptured by the French in 1779, and in 1783 restored to the English. The soil in the valley is a rich loam, and occasionally a fine black mould, capable of producing cotton, tobacco, cacao, coffee, indigo, &c. Of late years arrowroot is an important commodity exported.

GRENADA is the most southerly of the Caribbean group, and one of the most beautiful of the West India Islands. It is 24 miles long by 12 broad, and its area about 76,000 acres. Population 40,000. The island was discovered by Columbus in 1498, and after constant warfare between the French and the English was ceded to the latter power in 1783. Its origin is volcanic, and there are indications of iron, copper, and gold. The soil in the lowland is a rich black mould, on a substratum of clay, and the island produces sugar, indigo, cotton, &c.

TOBAGO lies 63 miles south-east of Grenada, is 32 miles long, with a breadth of about 9 to 12 miles, and the area about 97 square miles. Population 18,000. The island was discovered by Columbus in 1498, and named Assumption, but was afterwards called Tobago or Tobacco, because of the use of this herb by the Caribs. The island, after being in possession of the English and French alternately, was formally ceded to Great Britain in 1814. The climate is salubrious, the soil good, and sugar, cotton, coffee, cacao, cocoanuts, indigo, allspice, and pimento are cultivated.

TRINIDAD.—A large and valuable island, the most southerly of the British West Indies, is 50 miles long by 30 to 35 broad, with an area of about 2,000 square miles. Population 120,000. It was discovered by Columbus in 1498, and after being occupied by the Spaniards was finally captured by and remained in the possession of the English. Trinidad has a great harbour, the Gulf of Paria, in which ships may anchor and ride with safety; and the soil, which is very fertile, produces sugar, rum, cinnamon, cloves, nutmegs, cacao, chocolate beans, coffee, vanilla, annatto, arrowroot, indigo, &c. Here also is the celebrated pitch lake, so called because of the bituminous matter

which collects and floats on the surface of a fresh water lake. This exudation is from diluvial clay hills, and is produced in the same way as the green tar of Barbados. Iron ore, sulphate of copper, copper pyrites, quicksilver, arsenic, plumbago, have all been found in the island. The climate is better and less humid than that of Guiana, the temperature, especially on the north coast, enjoyable, and the natives are more muscular than those of the other islands.

Antigua, Barbuda, Dominica, Montserrat, Nevis, St. Kitts, Anguilla, and the Virgin Islands form the Leeward portion of the Caribbee group.

ANTIGUA contains an area of about 70,000 acres. It is salubrious and the soil good. Sugar is produced in large quantities. Population about 36,000.

BARBUDA lies 30 miles north of Antigua, and is about 19 miles long by 10 broad. Population 1,600.

DOMINICA is 28 miles long and 14 broad, with an area of 186,000 acres. Population 28,000. The soil is good, and well adapted for the production of sugar and coffee.

MONTSERRAT is about 30 miles north-west of Antigua, and has an area of about 30,000 acres. Population 7,000. Sugar is grown here, and a large business is now done in lime juice.

NEVIS lies to the north-east of Montserrat, and has an area of about 20 square miles. Population 12,000.

ST. CHRISTOPHER'S (or ST. KITTS) has an area of about 43,000 acres, and was probably the first island in the West Indies colonised by England. Population 29,000. This island is extremely dry and healthy.

ANGUILLA is the most northern of the Caribbee Islands, and has an area of about 35 square miles. Population 3,000. The climate is salubrious.

THE VIRGIN ISLANDS.—These are a number of islands, discovered by Columbus in 1493, and named by him. Tortola is the chief of the British islands, being about 12 miles long and four broad, and the total area of all the islands is about 60,000 acres. Population 5,000. Santa Cruz (Danish) and St. Thomas (Danish) have a population of about 26,000 and 13,000 respectively.

The archipelago called THE BAHAMAS consists of a number of small sandy isles stretching between Hayti and East Florida. The total area is about 3,521 square miles. Population about 40,000. They produce cotton, mahogany, brazilletto wood, lignum vitæ, satinwood, cedar, pimento, wild cinnamon, and fruit in abundance, especially pineapples, oranges, lemons, and increasing quantities of Indian and Guinea corn and vegetables of all sorts. The base of the islands is coral, and the surface

substratum consists of *debris* of coral, marine deposits, and vegetable matter. The porous quality of this covering retains the moisture, and this, coupled with a temperate climate, causes vegetation to flourish and makes them a suitable resort for invalids troubled with pulmonary complaints.

The BERMUDAS lie 600 miles from Cape Hatteras, and are said to be as numerous as the days in the year, and have an area of about 12,000 acres. The climate, excepting for three months, is genial and salubrious, the fields and trees are always green, while the rains are few, though heavy while they last. The heaviest exported articles are potatoes: arrowroot, which at one time was a leading article, having fallen off, although the quality was good. Only about 10,000 out of 12,000 acres are cultivated.

The BAHAMA ISLANDS are all British, and are more temperate in climate than the Greater Antilles.

ISLANDS OFF THE SOUTH AMERICAN COAST.—Buen Ayre, Curaçao, Tortuga, and Oruba (Dutch), Coche, Margarita, and Curgua (Venezuela).

BRITISH GUIANA is the country extending from the Courantin river westward of the Orinoco and from the seacoast to the sources of the river Essequibo and Courantin, its area having been estimated at 76,000 square miles. In 1878 the population was 225,000, exclusive of aborigines, of whom it is difficult to obtain information. The chief town is Georgetown, with a population of over 25,000, of whom a large proportion are negroes. The great industry is that of sugar raising, and to cheapen the cost of production large numbers of Chinese and coolies are imported, who work at a low rate of wages, whose rights are carefully safeguarded. Lately an important trade has sprung up in balata or guttapercha. The splendid timber forests are another source of wealth, which supply teak and other valuable woods in almost unlimited quantities.

TECHNICAL EDUCATION.

Seeing that the geographical cases promised to be a success, I was led to take another step onwards, and this time in the direction of simple, technical education, and this was by means of the technical cases exhibited. The sight of the imported objects naturally causes the question, "And what do you do with them?" The technical boxes supply the answer in many cases, though it is obviously impossible to do so in all.

The porcelain case, which you have seen, is one of the most interesting and complete, and was arranged at the Worcester Porcelain Works; that showing the different stages of candle making, both from palm oil and stearine, by the Price Candle Company. Another interesting case is that illustrating paper-

making, not only from rags and straw, but also from Esparto grass and from wood pulp.

Cotton is shown in its raw state, through the spinning stages to the finished cop and cloth, and to make the case more complete specimens of printed cloths are added, which are intended both for home and foreign use. Wools of different kinds, including mohair and alpaca.

Soap making, mathematical and drawing instrument making, by Messrs. Thornton and Co., of Manchester, show the perfection to which these branches of industry have attained.

Jute, silk, the products, and by-products of pyrites and manganese, ultramarines, glass, are also either complete or almost complete, and it is hoped before long that the list will be increased.

THE HANDBOOKS AND THEIR USE.

Handbooks will be issued with these, for the guidance of the teacher, but as it is manifestly impossible to deal with such subjects in an elementary school with any degree of minuteness, it is intended to keep them as simple as possible. So far they have proved useful for giving object lessons, and both the technical cases as well as the geographical supply a want in this direction, and if judiciously used ought to ease and not increase the work of the teacher. For my own part I am a thorough believer in technical education, but the chief fear which those have who are desirous of introducing technical education into our schools, is the difficulty of doing so without overburdening our already over-worked teachers. It is all very well for theorists to say that such and such subjects should be taught, but it is very generally admitted that teachers have quite as much to do as they are physically capable of, and although the increase of power proposed under the new code is a step in the right direction, still it is not enough, for although this will ease the teachers the children will still suffer.

It can hardly be denied that over-pressure exists, and the first step to ease both teachers and children must be by the simplification of the work required in the elementary schools. To do this efficiently the establishment of primary and secondary schools is absolutely essential. There is no use tinkering with the present code. If the work is to be done well the schools must be remodelled and the work prepared on a common-sense practical basis. In the primary schools the children should be taught fewer subjects, but those subjects should be taught more thoroughly, so that the children, instead of learning in a parrot-like way, should be able to see the why and the wherefore of what they are taught—this being simply impossible under the existing code. Our present system is not elastic enough. It is

too rigid. There is not enough play in the machine, and the consequence is that the town boy gets the same education as the peasant, as if they were intended for similar positions, and they are all forced to take the same dose, like the boys at Mr. Squeers's school.

To give a thorough, practical education, it is absolutely necessary to divide the schools into elementary or primary, and into secondary schools, so that a sound, useful education may be given in the former and a practical technical education in a complete form in the latter. Above all, we must teach our children in both departments to use their fingers as well as their brains, and as far as possible to suit the education to the requirements of the district in which they live.

The deterioration of house servants, the miserable state of many a working man's home, all point to an absence of true practical education; and it is, therefore, a matter of deep thankfulness to see that practical useful subjects, such as cookery, laundrywork, useful sewing and kindred work, are being taken up more and more; but the advance is being made outside the Department, and almost in spite of the Department, for many schools which have introduced cookery have not got their money back, because of the 17s. 6d. limit.

We call ourselves a practical nation, but in some things we are not so; and we have only to turn our eyes to the work done on the Continent to show us our shortcomings—not that their system is by any means perfect, but still they are more advanced in many ways than we are.

Take the subject of "Slöjd" as taught in Scandinavia, and its value to those who emigrate, as compared with the education we give our peasants, who ought to fill our colonies, and we soon perceive the worthlessness of the latter. Or, again, take the facilities which are given by many of the Continental nations—Germany, Belgium, France, and Switzerland—for obtaining practical technical education, and our shortcomings are still more manifest. The teachers in these schools are all helped by technical museums, some of which are most elaborate, notably those at Zurich, at several centres in Germany, in France, and in Belgium.

It must thus be apparent to all that secondary schools, with full and complete appliances for obtaining a useful education, are absolutely necessary if we are to keep pace with the times, and to do this we must not be ashamed to take a leaf out of the book of our neighbours.

For instance, take the case of a German who wishes to start in business in England. When he lands on our shores he knows the language, and that is half the battle. But how many Englishmen take the trouble to master the language of the country where they intend to trade, and if they wish to do so

where can they learn? Suppose a Manchester shipper wishes to send out a clerk to India to trade direct with the natives and open our markets, what chance has that clerk to learn the native languages?

If we are to hold our own and open new markets, steps must be taken to give our young men a chance of obtaining this knowledge. There are plenty of countries open to us: we have only to seize our opportunity and push our wares, and there are plenty of young energetic men who will be glad to go if they are properly trained.

The late Mr. Alderman Goldschmidt.—The following account of the funeral of one of the founders of the Society and one of its trustees will be referred to with interest and sympathy. The remains of the late Mr. Alderman Philip Goldschmidt were interred at the Southern Cemetery, Withington, on March 11. The respect and esteem in which the deceased was held throughout the city was evidenced by a demonstration of imposing proportions. The interment was preceded by a short service in the Protestant chapel of the cemetery, conducted by the Rev. S. A. Steinthal, of the Cross Street Unitarian Chapel. The edifice was crowded with the family and friends of the deceased, and hundreds were unable to gain admission. The ordinary burial service was impressively read, after which the Rev. S. A. Steinthal addressed the congregation. He said: It has hardly ever fallen to my lot to have so hard a task as that which is mine to-day. There are times when it is impossible to say anything which can really tell what is in the heart. Thus is it with me to-day, when I feel that I am following to his last earthly resting-place one who has been one of my most honoured, truest, and kindest friends. "The Lord gave, the Lord hath taken away, blessed be the name of the Lord!" Well is it for us that we cannot help acknowledging, even in the fresh bitterness of our own affliction, that God, whose mercy is over all, has been gracious indeed unto our dear brother, and that however we may feel stricken, to him death has been a release from weakness and from suffering, an entrance into that peace which the Psalmist tells us is the end of the upright man. Our comfort and our strength to-day must come, not from any thought of self, but from remembering now such a life of unflinching benevolence, of self-sacrificing devotion to the wellbeing of others, of such tender, loving consideration for the wants and necessities of the sick, the poor, and the afflicted—such a life as our friend lived is the most fitting preparation for entrance into the blessedness of that kingdom in which the Father of Universal Love is all in all. It is not possible, nor would it be right, even if possible, to tell even of a tithe of what Mr. Goldschmidt has done, and thus to prove how the words I have just used in describing his life are but a faint summary of the actual facts. The presence here of so many who yearn to show their reverent love for him, representing as they do all sorts and conditions of men, all parties and all sects, is evidence of how wide his charity has been. It has known no narrowing limitations, but has gone forth freely to all in need. But while his kindness has thus been ever freely poured forth, so widely that I think no one who knows how many sad hearts it has cheered, and how much sorrow it has comforted, we must remember with grateful hearts what thoughtful consideration he bestowed in its exercise, and with what wisdom he has directed the management of those benevolent institutions which were the special objects of his personal interest. Other men have given money, but few have been able by their personal work to do what has been far more valuable than even the liberal pecuniary gifts he bestowed. His own ardent zeal aroused a kindred spirit among his fellow-workers. Educational institutions, associations for providing recreation and healthy exercise, had in him a most sincere friend. The Eye Hospital will be acknowledged by all connected with it to be itself a monument of how efficiently he knew how to organise in active completeness forces which might never, but for him, have been guided into such beneficent efficiency. The Infirmary, during his treasurership, has become as admirable for its economical as it has always been in its medical and surgical efficiency. Southport and Buxton are witnesses as well to the peculiar gift Mr. Goldschmidt possessed for hospital administration. What must I say of the great public services which Mr. Goldschmidt rendered

to this city of his adoption? It is a benefit to the community if anyone establishes in it a business of so extensive a character as that over which our friend presided, but only too often do we find that men with such heavy responsibilities do not give more than this inevitable advantage to their neighbours; but our friend was not content with it, nor with his practical co-operation in all possible branches of charitable activity. He did the community the great service of freely devoting to the public good a vast amount of time and thought, entering into the municipal management of the district in which he lived, and then into the Council of this great city. He was able there to accomplish more than most of his colleagues. Manchester is and will be grateful to him for the large sums which he has given to her public institutions, but she is indebted to him even more largely for great sums which he has prevented her needlessly expending by the judicious plans of administration he successfully carried. That he twice was called upon to fill the high office of mayor was a proof how highly his work was esteemed by his colleagues. Though Manchester has for so many years had foreign citizens to whom it has given an honourable welcome, and who in return have shown themselves faithful and generous in their adopted home, yet Mr. Goldschmidt was the first native of Germany who had filled the chief magistracy of this city. How admirably he did fill that office, with what courtesy and generous hospitality, with what overflowing charity and yet firm discrimination between real and pretended need, how truly he served the city, we all remember, and his portrait hanging in our public gallery will remind coming generations of the good which he has done in such varied ways, and will, I trust, encourage others to follow his noble example of faithfulness in every branch of duty which he felt called upon to undertake. He had a clear understanding, an ever-open well-trained mind, and, above all, a heart so generous and so kind that no appeal of real distress came to it unrelieved. Yes, he was all this; but if he was all this, must he not have been still more than this? He was himself mindful that he had been blessed in life, and he was grateful to the Father in Heaven, from whom all good gifts come, for what he had received, and he used all as a faithful steward whom the Father had blessed. Yes, blessed he was in life, though not without his trials. He looked back upon a successful business career which enabled him to follow out the benevolent instincts of his generous nature. He was blessed with a wife whose loving sympathy helped him in all his public work while she was spared to him, and made his home indeed full of joy. It was his bitterest trial that five years ago, within but a very few days, she was suddenly taken from his side. They are reunited now. It must be a comfort to his children to know how they in his bereavement helped him to bear his sorrow, and how proud he was of them. Yes, his was a blessed life. He had passed our allotted threescore years and ten, and had drawn near to fourscore. During the last months physical weakness and discomfort tried him sorely. He complained that his memory was not as strong as it had been; compulsory inaction was a burden to a man who had never been content even with the conduct of a large business, and had not found the guidance of a great city's affairs work too much. He is set free. He has gone unto his reward. He has done the work of a true man, and rests in God. But our hearts still must grieve, for what do we not lose in bidding him farewell? Where can we find comfort but in communion with God, in whose presence, when our time comes, we shall greet again the loved ones whom now, with fainting heart, we mourn?

The coffin was then borne to the graveside, and deposited in its last resting-place, the Rev. S. A. Steinthal officiating.—*Manchester Examiner.*

Garenganze.—The extraordinary work of Mr. F. S. Arnot in search of a healthy plateau between the Zambesi and the riverine lakes of the Livingstone or Upper Congo river is told with graphic power in this little book. The journeys taken were not quite over the same ground as that covered by Livingstone, but very nearly so, and both travellers find their way to Cazembe. The story was told to the Royal Geographical Society in January last, and in this reprint details are added which makes the narrative very interesting indeed. We understand Mr. Arnot has returned to these countries, accompanied by his wife, and we shall watch his future progress with considerable sympathy. He gives a clear account of the countries traversed, and is quite alive to the need of commercial enterprise by which to destroy the slave trade; but he is singularly devoted to the work of the elevation of the spiritual and moral condition of the people, and his simple, unadorned, and refreshing story will be a great delight to those who have the good fortune to read it. Like all who have gone before him in these districts he has had his sufferings, but he has also had his triumphs.

T A R A N A K I.

By MR. R. HENRY GIBSON, B.A., OF TARANAKI, NEW ZEALAND.

[Read to the Members in the Library, January 16th, 1889, by the Secretary.]

THE Province of Taranaki, or, to speak correctly, the Provincial District of Taranaki, on the west coast of the North Island of New Zealand, though one of the most beautiful and not the least fertile regions in the whole colony, has, since its first settlement—not far from half-a-century ago—down to the present date, been, for several reasons, one of the least known and least settled. Hemmed in between a vast and all but impenetrable forest on the one hand, and the ocean on the other—having a coast affording along its whole length not even a safe roadstead—surrounded by hostile native tribes—cut off from almost all access, save by sea, from the rest of the colony—such was, for many years, the condition of Taranaki. Moreover, unlike the more favoured provinces of Canterbury and Otago in the South Island, there were in Taranaki little or no funds available for making roads and bridges, or for constructing a harbour, the wealth resulting from the valuable land endowments elsewhere being here locked up, chiefly through what is termed the native difficulty. Only a very few years ago, the visitor or emigrant to Taranaki who arrived by sea, had to land at the Port of New Plymouth, the capital of the Province, in a surf-boat, in shape and size resembling a cross between a whale-boat and a coal-barge, provided the heavy rollers of the South Pacific did not render this impracticable, and oblige the steamer to carry on its passengers to the sheltered harbour of the Manukau, the port of Auckland on the west coast, a hundred miles to the north. This carrying on passengers, and more frequently cargo too, occurred sometimes not only once but twice or thrice during the stormy season. In calm or comparatively calm water, the steamer used to anchor about a mile from shore, in the open roadstead, when its male passengers, unless of a weak physique or of nervous temperament, had to climb down the vessel's side by means of a rope-ladder, or else jump from the gangway into the arms of a stalwart boatman or on to the top of a mass of miscellaneous freight, not always of the softest material, piled up on the surf-boat, bobbing and rolling below. The lady passengers were seated in a tub, in which the adventurous fair squatted one at a time, and having first been hoisted aloft by a running tackle suspended from the steamer's yard-arm, were then gently lowered into the expectant arms of the gallant crew of the same boat. It speaks much for the skill and courage of this surf-boat crew, that during the many years of the performance of this difficult and often dangerous landing service, only one fatal accident occurred. This landing process was completed by carts and light wagons, called expresses, being driven into the water for several yards, to convey the passengers and freight from the surf-boat to dry land.

In 1879, when the writer of this paper first came to Taranaki, he travelled overland from Wellington, the capital of New Zealand, a distance of about 260 miles. This journey then occupied four to five days, the last of which was devoted to jolting, or rather jumping, over a mere track cut through the forest at the foot of Mount Egmont, and connecting the new settlement of Normanby with the existing terminus of the railway, from New Plymouth to the village of Inglewood, the distance thus traversed by track being about thirty miles. Driving in a springless

cart over a ploughed field was a joke to the bumping and thumping. At one spot, when the four horses dragging the heavy lumbering vehicle called Cobbe's coach, in universal use throughout these colonies, were galloping down one steep slope to gallop the better up the other, the driver shouted to us inside, "Hold hard there! My brake's broke, and I'm going to *fly*!" *Fly* he did, literally leaping, coach and horses, over a small gully (ditch) at the bottom.

Till this road was finished—since followed by a railway joining Wellington to New Plymouth—the immense forest clothing the slopes of Egmont, whose majestic cove, covered with eternal snow, is visible from every part of Taranaki, was impenetrable by ordinary humanity, unless it were a Maori war-party, or a bush-whacker. The undergrowth of this as of nearly every other forest in New Zealand, is semi-tropical in denseness and luxuriance. Huge creepers are festooned from one tree trunk to another, often in the most lovely and fantastic shapes. Supplejacks or native canes trip up the heels of the unwary "new chum," knock off his pot hat, and affectionately embrace his neck and limbs; long green withies, provided with sharp thorns, and often marvellous tenacity of grip, locally termed "lawyers," tightly grasp every part of his luckless person. Tree ferns, fifty to sixty feet high, with fronds measuring fifteen to twenty feet in length, with smaller brethren of their countless tribe, cool him, when over-heated with frantic struggles to escape, by dropping water down his back. Need it be said that that ubiquitous and restless personage termed "The Globe Trotter," and the voracious authors of books like *Greater Britain* and *Oceana*—who know everything and can tell you everything of the British Colonies after having "seen 'em at a glance"—are very rarely beheld in these remote localities? I venture to affirm of these omniscient gentlemen in general, that they are as accurately and extensively acquainted with the real condition of, say, New Zealand, and the actual life of its colonists, as may be expected from the social intercourse of a few days with some wealthy settler at his hospitable abode, or, more frequently, from the smoke-room conversation of a cosy city club, always ready to welcome a distinguished stranger.

A short but as correct as possible description of the Province of Taranaki, in which a former Manchester man has spent nearly ten years as a settler, and many places in which he has repeatedly explored, may not be without interest to the members of the Manchester Geographical Society.

The Province, since 1876, when provincial Governments were abolished, officially designated the Provincial District of Taranaki, had its origin in the year 1840, at the settlement of the town of New Plymouth, founded by the "Plymouth Company of New Zealand," in conjunction with "The New Zealand Company." The boundaries of the province were defined, under the Constitution Act of the colony, in the year 1852. Taranaki was at that time called "The Province of New Plymouth," but an Act of the General Assembly of New Zealand, in the year 1853, changed that name into its present. The Province consists of the western projection of the Northern Island, lying between 40° 10' and 39° 30' south latitude, or in nearly the corresponding latitude north of the coast of Portugal, between the mouth of the Tagus and Mondego rivers. Its longitude lies between 173° 40' and 174° 55' east of Greenwich, or in the corresponding longitude of only one other portion of land upon the globe—that of the extreme north-east of Siberia, bordering upon Behring Sea. The area of Taranaki contains, according to the latest official returns kindly furnished me, 2,429,510 acres, or rather more than three times the area of the county of Chester, in England. Of this area, 1,916,910 acres may be described as forest land; 512,600 acres as open land. The proportion of settled land, of every sort—forest clearings included—is officially stated at 491,530 acres. The southern and western boundary of Taranaki is formed

by Cook Strait and the South Pacific Ocean respectively. The coast along Cook Strait, where that passage between the North Island and the South Island measures from sixty to eighty miles in width, extends from the mouth of the Waitotara river, separating Taranaki from Wellington Province, as far as Cape Egmont, the extreme westerly point of the district, a distance, in a direct line, of seventy miles, in a direction west by north. From Cape Egmont to the mouth of the River Mokau, separating the provinces of Taranaki and Auckland, the line of coast, continuing to follow the curve round the base of Mount Egmont, trends in a general direction of east north-east for a remaining distance of sixty miles. The total length of the coast of Taranaki, measured along the indentations, is 145 miles. This sea-coast, along Cook Strait and the South Pacific, comprises few if any considerable inlets, and not a single natural harbour of even a third-rate excellence. The mouths of the Patea, Waitara, Urenui, and Mokau rivers, the only navigable rivers within the province, having an outlet along its coast, are blocked by more or less formidable bars, rendering egress and ingress both difficult and uncertain even to the comparatively small coasting steamers which ply between the several ports of the North Island's western coast. This coast of Taranaki is, speaking generally, composed of bare, precipitous cliffs, in height between 100 and 300 feet, rising, however, to the height of nearly 900 feet a few miles south of the Mokau, in the bluff known as the White Cliffs, or, in the native tongue, Parinihihi. Low sandy beaches stretch, at not unfrequent intervals, along the base of these cliffs for a reach of between two to five or six miles. Between the cliffs also run a number of gulleys or gorges, most of them clothed with ferns and intersected by clear streams. The general aspect of Taranaki from the sea is bare and uninteresting. The symmetrical cone of the extinct volcano, Mount Taranaki, or Egmont as it was named by Captain Cook, towering to a height of 8,280 feet in solitary magnificence, its peak capped with perpetual snow, and for half the year clothed with a mantle of the purest white down its precipitous sides, forms, however, as viewed from the Pacific, from whose very bosom this majestic mountain appears to rise, an object than which nothing more glorious is to be beheld. A picturesque group of rocks exists two miles south of New Plymouth, likewise volcanic, called the Sugar Loaves, or in Maori, Ngamotu. The highest of these, Paritutu, rising to 504 feet directly from the sea, affords from its summit a distinct view, in favourable weather, of the mighty mountain Ruapehu, its triple peak crowned, even in summer, with a mass of snow, the giant of the North Island, rising to an elevation of upwards of 9,000 feet. One of these Sugar Loaves—all of which, except the last-named Paritutu, are insular—called Moturoa, forms an important shelter to the New Plymouth breakwater, recently constructed to form an artificial harbour for the province. This harbour, thus formed, albeit at heavy cost, is accessible at all tides to vessels of as much as one thousand tons, and forms the chief port of call for the fine steamers of the Union Company of New Zealand, running between Wellington and Auckland along the west coast, as well as for other coasting craft. The harbour is connected by railway and road with the neighbouring town of New Plymouth. Though Mount Egmont is by no means one of the loftiest in New Zealand, where in the South Island many mountains rise to a height of from 9,000 to upwards of 12,000 feet (Mount Cook, the loftiest summit in the colony, being 13,200 feet), there are none which present a more magnificent appearance. Standing, as it does, close to the coast, on the centre of the rounded peninsula which composes, as has been stated, the western portion of Taranaki—its steep and weather-beaten sides, broken here and there by deep gorges, clothed lower down by evergreen forest-growth on its northern and eastern aspects, its symmetrical slope descending over a distance of between ten and fifteen miles to the level line of coast, curving gracefully round its base—innumerable streams of crystal water flowing along its ravines down

to the plains below, their banks, to an elevation of 2,000 feet, clothed with the most exquisite ferns and foliage of perennial verdure—its summit now wrapped in clouds of the most fantastic shape and beautiful colours—now, especially an hour before a winter's sunset—displaying the dazzling whiteness of its snow-clad slopes, tinged a pale rose or purple—Mount Egmont, the pride of every Taranaki inhabitant, Maori or Pakeha (European), may well boast itself of being if not the biggest yet one of the sublimest and most lovely objects in the world. Between the western side of Mount Egmont and the coast stretch two ranges of much lower elevation—the former, called Pouakai, or The Ranges, attain 4,600 feet, or considerably above the height of Ben Nevis; the latter, called the Patua or Kaitake Range, reach some 2,000 feet. The first are covered with forest and scrub to within a thousand feet of the ridge, and for the remaining distance with coarse grass, dotted over with volcanic rocks; the second, of singularly graceful outline, are clothed with luxuriant vegetation to the summit. Along the coast of Taranaki, over the distance of 145 miles, between the Waitotara and Mokau rivers, at either end, no fewer than 125 *named* streams, besides others not denoted, flow from Mount Egmont and the Ranges into the Pacific.

The country extending inward from the west line to a distance which varies from two to ten miles consists largely of open, level land—land that is free from heavy bush, and, where not broken up, covered with fern or scrub, gently undulated and intersected by shallow gullies. The greater portion of this district is well adapted for dairy farms and cattle grazing. The richest part is comprised between Waitotara, on the borders of Wellington Province in the south, and the small town of Opunake in the north-west, a distance of not far from seventy miles, and stretching inland to a width of from two to six miles. The richest portion of this entire region is called the Waimate Plains, some years ago the scene of more than one sanguinary struggle between the colonial forces and the rebel natives, now dotted over with flourishing settlements, and intersected by excellent roads. Ample reserves of some of the most fertile lands hereabouts are occupied and owned by the Maories, their head chief, Honi Pihama, being one of the wealthiest cattle owners in the locality. Most of this extensive and fertile country is open, level, exceedingly well watered, and affords rich pasture for herds of cattle and flocks of sheep, besides numerous horses and pigs, the two latter class of animals being owned as usual in large numbers by the natives. The price of the best land on the Waimate Plains, on or near the trunk road which runs along the entire seaboard of Taranaki, from Waitotara to the Mimi River near the White Cliffs, was a few years ago as high as £11 per acre, unimproved; its present average, including all improvements, say an addition of at least 25 per cent on the original cost, is only £6 to £8 per acre. The chief drawback to this otherwise favoured district is its exposure, unsheltered either by natural tree growth, or the least attempt—save here and there an artificial planting—to plant against the cold southerly and south-westerly winds which are prevalent in a New Zealand winter and spring respectively; also its great distance from a port for shipping cattle and produce.

A few miles further back, and nearer the foot of Egmont, excellent pasture land, covered partially with scrub or light brush only, may be had at considerably lower rates. Cross roads are gradually opening up this and other neighbouring districts; the chief obstacles being want of money, especially to build bridges over the numerous water courses, and the scarcity of stone or gravel, called "metal," general throughout the Province. Besides the townships of Patea and Hawera on its southern border, where there are stations on the railways leading from New Plymouth to Wanganui and Wellington, there are on this district and the Waimate Plains the small townships of Manaia, Oeo, and Otakeko, all situated on the main road. Between this strip of open fern-land along the seaboard, and the above line of railway running near the

ACCOUNT OF LAND IN CULTIVATION AND AGRICULTURAL PRODUCE, FEBRUARY, 1888.

THE results of the collection made in February last are published for general information. Registrar-General's Office, Wellington, 17th April, 1888.

E. J. VON DAELESZEN, Deputy Registrar-General.

Provincial District.	Number of Holdings over One Acre in Extent.		Extent of land broken up, but not under Crop.		In Wheat.		In Oats.			In Barley.		In Potatoes.	
	Freehold.	Rented.	Part Freehold.	Total Numbers.	Acres.	Estimated (gross Produce in bushels).	Acres.	For Grain.	For Root or Hay.	Acres.	Estimated (gross Produce in bushels).	Acres.	Estimated (gross Produce in tons).
AUCKLAND	6,197	1,462	462	8,121	23,721	9,860	287,382	14,239	7,480	481	15,654	4,762	22,016
	5,907	1,330	533	7,770	27,904	4,975	133,120	14,422	5,823	396	12,653	4,564	14,732
TARANAKI	1,389	625	249	2,263	1,020	2,082	60,748	750	2,628	248	9,178	874	4,995
	1,291	539	246	2,076	1,126	1,662	39,492	556	2,741	230	6,911	863	3,169

Provincial Districts.	In Turnips or Rape.	In other Crops.	Total Number of Acres under Crop, exclusive of Land under Grasses.	In Sown Grasses.			Grass Seeds, Produce of.			Quantity of Last Year's Crop remaining on hand when Form was filled up.	
				In Hay.	In Grasses after having been broken up (including such as in Hay).	Lands not previously ploughed (including such as in Hay).	Cocksfoot.	Ryegrass.	Bushels.	Wheat (bushels).	Oats (bushels).
				Estimated (gross Produce in tons).	Acres.	Acres.	Bushels.	Bushels.	Bushels.	...	...
AUCKLAND	14,451	7,200	58,473	21,428	307,715	500,117	22,443	117,885	472	978	70
	12,224	5,776	48,680	17,351	308,225	470,020	13,764	92,943	74	1,651	...
TARANAKI	3,796	669	11,047	5,470	64,295	175,243	83,573	9,650	3,559	2,875	86
	3,821	489	10,302	5,054	64,887	155,347	43,763	23,784	...	3,049	...

northern and eastern slopes of Mount Egmont, is a district covered more or less with heavy bush or forest, and much cut up with gullies and water channels. Here the land—though a good deal of it is by no means ill-adapted for pasture—is of decidedly inferior quality to the last-named, and the access by roads which, for half the year, are little better than mud-tracks, are great hindrances to settlements on advantageous terms. The price of unimproved bushland hereabouts varies from 20s. to 40s. an acre, freehold. A considerable portion of it, however, is Crown land, either leased at a rental of from 1s. to 2s. an acre, with a purchasing clause, or on the principle of deferred payment by which the occupier becomes, at 2s. an acre rental, in the course of ten years, owner of the farm. The cost of an improved bush farm is from £3 to £6 per acre. Some bush farmers—chiefly, however, those of the older generation, who did not fear hard work and hard living, and who settled in the district in days when the price of produce was, on the average, at least double the present—have done extremely well for themselves and their families. But, I fear, a very considerable proportion of the bush farmers of the present time are in anything but flourishing circumstances, partly from extravagant habits, partly from lack of practical skill in any but the roughest pioneering work, but chiefly from having had to heavily mortgage their property at the high interest of 8 to 10 per cent, even in many instances borrowing money at 10 and 12 per cent on bills of sale over their stock, produce, and implements; but, above all, the enormous fall in agricultural values of every sort, during the last few years. The size of the bush farms in Taranaki varies from fifty or sixty to four or five hundred acres, occasionally as many as a thousand. The chief wealth of the bush farmer—if wealth it can be called—consists in his milk cows, heifers, calves, and steers, to which sheep in considerably increasing numbers may be now added, besides horses, with the inevitable pigs and poultry. The life is hard and rough enough, but there is also about it a delightful freedom and independence, unknown, I fancy, to most small farmers in England, together with the reasonable prospect, with ordinary industry and prudence, of making a fair competence for the children, of whom the more a man has about him the better, the price of hired labour being prohibitive to all but capitalists.

On page 177 are the latest government agricultural statistics for Taranaki Province, on some figures of which, however, I have reason to entertain doubt as to their strict accuracy, knowing the difficulties attending their compilation in more ways than one. The statistics are as recent as February of this year.

In the provinces there were, at the same date, horses, 8,514; mules, 3; cattle of all description, 79,848; sheep, 132,270; goats, 84; pigs, 15,284; poultry, 62,091. To which I may add, from my own knowledge, donkeys, 1. There is a tradition, indeed, of there having once been 2.

The existing prices of cattle and produce in Taranaki I give chiefly from my own knowledge; partly, also, from the market returns in the local papers, *The Budget* and *Taranaki Herald*, of October 27th, the latest issue, as I write this paper.

	£	s.	d.		£	s.	d.
Draught Horses	10	0	0	to	12	0	0
Hacks	2	0	0	"	8	0	0
Calves	6	5	0	"	0	16	0
Yearlings (mixed).....	0	12	0	"	1	1	0
18 months to 2 years' old Steers.....	1	5	0	"	1	15	0
Heifers	1	15	0	"	3	2	6
Cows	2	5	0	"	4	10	0
Big Steers	2	17	6	"	3	5	0
Sheep, now in wool	0	10	0	"	0	12	0
Lambing Ewes	0	8	0	"	0	10	0
Ducks	0	1	6	"	0	2	0
Fowls (ordinary)	0	1	0	"	0	1	6

PRODUCE.

Butter, best, fresh.....	6d. to 1s. 2d.
Kegged Butter, chiefly for export.....	8d. „ 1s. 4d.
Milk	3d. to 4d. per quart, if near a town.
Eggs.....	6d. to 1s. 6d. per dozen, do.
Bacon and Hams.....	5d. to 7d. per lb.
Cheese ..	4d. „ 6d. „
Honey	4d. „ 6d. „
Potatoes	3s. to 4s. per cwt.
Carrots.....	£1 to £1 5s. per ton.
Grass Seed, according to description	3½d. to 1s. 3d. per lb.
Edible Fungus.....	3d. „
Oats.....	2s. to 3s. per bushel.
Wheat	3s. to 3s. 6d. „
Indian Corn.....	3s. to 3s. 6d. „
Firewood ..	16s. to 18s. per cord.

The actual price to the producer is, however, often lower than the above, owing, in chief measure, to the long distance from market, the scarcity of local consumers, the long credit and barter system, and other causes.

The principal colonial market for Taranaki cattle, sheep, and produce, is Auckland, to which the sole access is by sea from the other provinces, Taranaki included. The main trunk line of railway to connect Auckland with the towns in Wellington and Taranaki Provinces, so long projected, is, partly from the enormous cost, partly from the nature of the intervening country and the native difficulty—but more than all from discreditable political intrigues, too common in the colony—a project only, in spite of the expenditure, or rather waste of an immense sum of money, on preliminary expenses and less innocent objects. Wellington likewise takes a considerable and yearly increasing amount of Taranaki produce, especially butter. Here, again, the heavy freight and length of time consumed on the railway transit are serious obstacles, the former being no less than £3 a ton for butter, the latter occupying by the bi-weekly “express train” fifteen hours in running the distance of 260 miles from New Plymouth to the Capital. Much of this and other perishable produce is, however, conveyed by sea, with hardly more satisfactory results to the producer. Of late a good deal of business has been transacted in butter with the home market, Wellington being the port of export.

Already, with the prospect of a large increase in the home trade, dairy factories, worked chiefly by water power, but some by steam, are springing up over Taranaki. The enterprise, though yet in its infancy, appears likely to meet with very fair success, although there are still serious difficulties to surmount. The Sydney market, so far, has been the principal extra colonial market for butter, but the cost and risk of carriage are considerable, and the consumption extremely variable. From time to time a good wholesome drought in New South Wales—especially one lasting a year or more—makes Sydney a really profitable customer. With Melbourne—where the home dairy produce is scarce and dear, besides being of an inferior sort—there is no communication, except the tedious and circuitous route round the South Island *via* Dunedin, and the Bluff or Foveaux Strait. Thus owing to this cause and the high protective duties, commerce between that large and prosperous city and Taranaki is absolutely nil. The following are the latest shipping returns for the two ports of Taranaki, New Plymouth, and Waitara. At New Plymouth harbour, annual tonnage during the year 1887, 98,965; at Waitara, 24,089. Value of imports at New Plymouth (exclusive necessarily of coastal trade not entered at Customs), during the same year, £12,571; exports £2,536. The largest trade by far, be it understood, being coastal, is not valued here.

The capital of the Province, New Plymouth, containing rather more than 3,000

inhabitants, is healthily and beautifully situated on the seacoast, a few miles north-east of Cape Egmont. The main streets are wide and well paved, and lighted with gas. The town is likewise supplied with water, laid on from the neighbouring Waiwokaio River. The houses in the suburbs, nearly all of one storey, are very pretty, surrounded by verandas, and standing in tasteful gardens. A town of 3,000 inhabitants can hardly be said to be badly supplied with the good things of this life when, in addition to the above luxuries, it possesses no fewer than six churches of different denominations, a prison and police station, courthouse, four banks, eight hotels—two with a comfort and elegance I have never seen equalled at home in much larger towns—between thirty and forty shops or stores of every description, three primary schools, the principal containing some 500 children, a high school, and free reading-rooms, &c., &c. The second town of importance in the Province, Waitara, situated about a mile from the mouth of the river of that name, and connected with New Plymouth by road and rail, is distant from the latter town ten miles, in a direct line. It contains a population of about 600. Other so-called townships are Inglewood, Stratford, and Normanby in the forest, and on the line of railway to Wellington; Hawera about 700, and Opunake already mentioned. In addition to these are such smaller settlements as Urenui, Omata, and Okato, dotted along the coast. The town of Patea, on the other side, and Hawera, on the Patea River, must not be omitted from the list, though in a declining state, and almost deserted. Except New Plymouth, these Taranaki towns present a somewhat forlorn, not to say dismal, and deserted aspect. It is in the country districts that colonial life shows at its best and healthiest, Taranaki being no exception to the general rule. The atmosphere, physical and moral, of colonial towns is, as a rule, the reverse of sanitary to the new chum—especially if young and innocent—too often deadly, should he frequent it long. The vast area of back country between the line of railway skirting Mount Egmont and the foot of Ruapetua, sixty miles of almost unbroken forest, is being slowly opened up. The greater part is unknown save to the Maories and to a surveyor or two. I hope, however, before long, to be able to send the Society some information respecting it.

Ancient Portuguese Navigators and the North-East and North-West Passages between Europe and Asia and America. By J. BATALHA-REIS, F.R.G.S.—When Professor Nordenskjöld made his celebrated voyage along the northern coast of Europe he was greeted as being the first to have linked Europe with Asia by that channel. Latterly the voyage of Captain Wiggins and Mr. Sullivan (of Newcastle) through the Straits of Kara to the mouth of the River Yenesei have given occasion for a revival, principally in the North of England, of the interest in this geographical question. Publications now little read, however, prove: (1) That in 1555 Martin Chacke (Martin Chaco?), a Portuguese, on board a vessel on the coasts of Asia, navigating in company with other vessels, was separated from these by strong westerly winds, and, proceeding north and east, through numerous islands, came, by a strait in 59° N. lat., to Newfoundland, and thence to the north-west coast of Ireland, and on to Lisbon, where he arrived four or five weeks before the vessels from which he had become separated in Asia. This Martin Chacke, or Chaco, wrote and published the narration of his voyage. (2) That in 1660 the Portuguese Melgueiro sailed from Japan, in the month of March, in a northerly direction; running along the coast of Europe westwards, he reached 84° N. lat., passing successively between Spitzbergen and Greenland, and, travelling south, along the west coasts of Scotland and Ireland, arrived finally in the Tagus. Documents of both these journeys are to be met with in *Purchas, his Pilgrims, &c.*, London, 1625, 4 vols.; Pierre Bergeron, *Traité des Tartares, &c.*, Paris, 1634, 1 vol.; P. Buache, *Considérations Géographiques et Physiques sur les nouvelles découvertes au nord de la Grande Mer*, Paris, 1753, 1 vol.—*British Association Report*, 1889.

INDIAN RAILWAYS AND BRITISH TRADE.

(See Map.)

By MR. HOLT S. HALLETT, C.E., &c.

[Delivered April 5th, 1889, at 3 p.m., in the Boardroom of the Manchester and Salford Bank in York Street, Manchester, the meeting called jointly by the Manchester Chamber of Commerce, the United Cotton Spinners' Association, and the Manchester Geographical Society. Mr. Henry Lee (president of the Chamber of Commerce, and vice-president of the Manchester Geographical Society), in the chair.]

MR. HOLT S. HALLETT, before commencing his address, pointed out on two large maps the direction of our present system of railways in India. He then said: In the final report of the Royal Commission on trade depression, issued in January, 1887, we were told that the increasing severity of foreign competition is a matter deserving more serious attention at the hands of our commercial and industrial classes; that our supremacy is now being assailed on all sides by rival manufacturing nations; that over-production has been one of the prominent features of the course of trade of recent years; and that it is obvious, in order further to extend our commerce, we must display greater activity in the search for new markets. Considering that production in England increased at the rate of only $1\frac{1}{4}$ per cent per annum between 1870-85, or by considerably less than half the rate of the previous twenty years, whilst the population of our manufacturing districts was increasing more rapidly than in the earlier period, owing to the great influx of displaced agriculturists—remembering that the population of Lancashire has for years been increasing five times as fast as its operatives, and that over-production means but the deficiency of customers for our goods—it is surprising to me that the merchants, manufacturers, and operatives of this county have not yet fully awakened to the importance of developing their trade by all means in their power with the cotton-clad people of Southern Asia, particularly with the inhabitants of India and China, who together comprise fully one-half of the population of the world.

It cannot be satisfactory to the people of Lancashire to know that they are being left behind in the race for the commerce of the world; that between 1877 and 1887 the consumption of raw cotton in Great Britain only increased 17 per cent, while that on the Continent increased 50 per cent, and the United States 71 per cent. The consumption of raw cotton on the Continent in 1887 was running neck to neck with that of Great Britain. Since 1881, my friend Mr. Colquhoun and I have been striving our utmost to interest the people at home in the great and yet undeveloped markets of the East. We have tried to impress upon our Government and the mercantile and manufacturing community that we are in possession of certain advantages which render us the envy of competing nations. We are the possessors of India, and as such are the next-door neighbours to the land-locked half of the great and populous empire of China. We have tried to awaken an intelligent interest in the subject of the importance of connecting India with China by a railway; and by exploration have proved to the satisfaction of everyone who has studied the question that a practicable route between these two great empires exists, and that along that route a railway can be constructed at a reasonable cost, which would tend greatly to enhance the commerce of Great Britain and India with its Eastern neighbours, Siam and its Shan States and the western half of China. When this railway is constructed, its inland terminus at Ssumao would assuredly form the nucleus of a system of Chinese railways, which would spread through the country in various directions, and eventually a branch would certainly be made to join our terminus at Ssumao with Patkoi, the southern treaty port in the China Sea, and thus complete a through line from the Persian Gulf

to the China Sea by a railway extending solely through British, Siamese, and Chinese territory. This line would pass through the richest parts of Asia, foil the designs of the French, who are hoping to oust our trade from Southern China and Central Indo-China, and give us vast markets for the future expansion of British and British-Indian commerce. This chamber has more than once recorded its opinion in favour of this railway. I therefore merely mention it in order to call your attention to the fact that the Government of India is still according it its cold shoulder. In looking over an article on "The Growth of the Cotton Trade," which appeared in 1887 in the *Journal of the Manchester Geographical Society*, I came upon the following statement: "The Board of Trade Returns show that the export of cloth in 1886 exceeded that of 1881 to the extent of 73 million yards, but during this time the exports to India increased 479 million yards, showing an actual decrease to other parts of the world to the amount of 406 million yards. This shows very clearly our great dependence upon India as a customer for our cotton manufactures." Between the end of March, 1877-87, the import of your piece-goods into India increased from 1,186,418,810 yards to 2,155,713,385 yards, or by 82 per cent. If it had not been for the increase of your export to India, China, and Japan, in these ten years your export of cotton piece-goods would not only have shown no increase but a very serious decrease. The more one examines into the present state of the demand for British manufactures the more clearly does it become evident that we are growing, with ever-increasing rapidity, more and more dependent upon the great markets of the East. In the last two years I notice in the Board of Trade Returns that our export of piece-goods to Germany has decreased from 45½ million yards to less than 31 million yards; to Italy from 85 million yards to 46 million yards; and to the whole of the Continent by 10 per cent. Our piece-goods trade with the Continent of Europe promises soon to become extinct. Looking at North America our prospects are even more gloomy. Between the end of 1886 and the close of 1888 our export to the United States decreased 32 per cent, and our export to British North America by over 21 per cent. With these facts staring you in the face, and with the knowledge of the great loss that your trade has suffered through the recent impoverishment of the classes who are dependent upon agriculture for subsistence, I do earnestly hope that the importance of further extending your trade in India and the western half of China, by the extension of the Indian railway system, will be so impressed upon your minds that you will for the future make that extension the chief plank in your political platform. It is a question of bread and butter for the people of Lancashire; it is a question in which is bound up the decrease or the increase of your manufacturing industries, the future employment or destitution of your operatives. India is our largest customer. India takes 14 per cent of the gross exports of the United Kingdom and 35 per cent of your cotton piece-goods. Our export of cotton goods to India is valued at 22½ million sterling. Between 1877 and 1887 the foreign imports of India increased nearly 66 per cent and 80 per cent of those imports came from the United Kingdom. In the same period the railways of India increased from 7,322½ miles to 14,383 miles, or by 96½ per cent; and it is this increase to the railway system that beyond doubt enables the people of India to consume their share of the increased out-turn of the Indian cotton mills and take besides 82 per cent more of our cotton piece-goods than was received by them in 1877. As the increase of the Indian railway system by 7,000 miles has been the chief factor in causing an increased demand for your piece-goods to the extent of 969,294,575 yards or, to speak roughly, a thousand million yards, you may feel assured that a further extension of the Indian railways to double their present mileage would enable India to consume four thousand million yards of your piece-goods, an amount equal to four-fifths of the present gross export of those goods

from this kingdom. There should be no talk of over-production in England whilst we have this great future market in our possession, only waiting for our exploiting by means of railways to double and treble and quadruple the exports from this country.

Nothing is more delusive than an atlas in which the maps are drawn to different scales, and England and Wales looks as large as our Indian dominions, and the railway system of one country appears to be as large as that of the other. India is twenty-seven times the size of England and Wales, and thirteen times that of the United Kingdom. It contains over 270 million inhabitants, most of whom, at the present time, are as much cut off from railway communication as when there was not a mile of railway in the country. Railways in India are in their infancy. If India were as well supplied with railways as England is, it would have 365,000 miles, instead of the paltry 15,000 miles it now has. If the Indian Government continues the construction of railways at the same rate that it has been doing during the last thirty years, it will take more than 900 years to give it, for its area, the equivalent mileage of England.

Taking Sir Juland Danver's figures, given at his late address to the Society of Arts, we find that there are now no more than 14,890 miles of railway open in our enormous Indian Empire; that the 6,948 miles open in January, 1877, had taken twenty-seven years to construct, and that the remaining 7,952 miles had been constructed in twelve years. The estimated amount expended on the open lines had been up to date 187,226,000 rupee pounds, or tens of rupees, making the average cost per mile 12,000 rupee pounds. The railways constructed up to 1877 cost on an average 15,740 rupee pounds a mile, or, as the exchange had up till then been nearly at par, about £15,000 sterling; the railways built since that date have averaged 10,320 rupee pounds a mile, which, allowing one-sixth for the average deduction on account of fall in exchange, would be equivalent to about £8,600 sterling a mile, or about 43 per cent less than the railways constructed in the earlier period. Metre gauge railways can now be constructed under ordinary circumstances at about £4,500 a mile, or at less than one-third the cost of the early broad-gauge railways, and have therefore a very fair prospect of earning large dividends, and, if constructed from borrowed money, proving highly remunerative to the Government of India.

These figures show how much more rapidly and cheaply railways are now made than in the early days of construction. The reason is plain. We were buying experience during the operations of the first twenty years, and for a long time the expense and difficulty of moving materials to their destination was enormous. The Mutiny also intervened, and caused delay and destruction. The greater portion of the above-mentioned addition was also metre-gauge lines, which have no doubt cost much less to construct. Materials likewise sent out from England were very much dearer than they have been recently, and the cost of freight was higher. The substitution of steel for iron has in many ways aided economy. Steel rails are now supplied under £4 per ton, while as much as £13 7s. has been paid for iron rails, and £8 to £9 was a common price. A steel sleeper is also used and found very serviceable. Locomotive engines also are now obtainable at a lower price than was formerly given for an engine of much less size and power. The three railways which were first undertaken have cost upwards of £20,000 per mile, but it should be borne in mind that they are on the 5ft. 6in. gauge, and that a considerable portion is laid with a double line of rails. I allude to the East Indian, which cost Rs.231,719 per mile; to the Great Indian Peninsula, which has cost Rs.204,493; and to the Bombay and Baroda, which has cost Rs.206,668; or the Oudh and Rohilcund, another broad-gauge line, which was commenced some time after these, and was only finished last year, cost only Rs.128,595, although it includes in its system several large bridges, among them the Dufferin Bridge at Benares. The Midland and the Bengal-Nagpur Railways, also of the 5ft. 6in.

gauge, now in course of construction, are expected to cost about Rs.120,000 per mile. The first metre-gauge line, completed in 1877, was the Rajpootana-Malwa, and that has cost Rs.69,066 per mile. The South Indian came to Rs.69,066; the South Mahratta to Rs.80,125; the Burmah to Rs.80,290; the Tirhoot to Rs.70,333. The Bengal and North-West has been constructed at the rate of Rs.60,235 per mile, while some provincial lines, also on the metre-gauge, in Oude and Rohilkund, have been made for Rs.41,964 and Rs.33,207, and in the Guicowar's territory they have cost Rs.22,823 and Rs.28,415 respectively, without rolling-stock. Under very favourable circumstances the cost has, in some districts, been reduced to Rs.18,436 and Rs.16,272. Instances of these occur in the Native States of Jodhpore and Morvi, in the latter of which, however, the gauge is 2ft. 6in.

The direct financial results of making the railways are given by Sir Juland Danvers as follows, the amounts being given in tens of rupees, or rupee pounds: "In 1875, on an expenditure of £105,790,929, 6,497 miles earned a net revenue of £3,647,868, and yielded a dividend of £3 8s. 9d. per cent. In 1885 a sum of £9,126,331 was earned by 12,280 miles, which had cost £161,917,840, giving a dividend of £5 12s. 10d. per cent. In 1887, 14,383 miles were open. The capital expenditure was £182,879,655, and the revenue realised £9,364,821, yielding a return at the rate of £5 2s. 5d. per cent. These results, it will be understood, were produced from lines many of which had been at work for only a few years, some had only just been opened, and a considerable proportion were made for strategic and famine purposes. A portion of the capital on which the average dividend is calculated represents also unfinished and unopened lines, which necessarily are dead weight on the whole. Some lines, of course, earned higher than the average rate. The East Indian, for example, yielded £8 7s per cent; the Great Indian Peninsula, £8 0s; the Bombay and Baroda, £7 8s; and the Rajpootana-Malwa, £6 5s per cent. Taking the whole system, and classifying it according to its earnings, 6,368 miles yielded £7,544,066, and earned more than 5 per cent; 347 miles yielded £101,445, and earned more than 4 per cent; 2,039 miles yielded £635,836, and earned more than 3 per cent; 5,305 miles yielded £182,674, and earned under 3 per cent. Of the 14,528 miles completed, 3,936½ have been open twenty years, 3,385½ ten years, 2,822½ five years, 4,382½ less than five years."

To account for 5,305 miles of railway in India earning less than 3 per cent, the interest at which the Government of India can now borrow money at par for the construction of railways, we must remember that 4,382½ miles of railway have been opened less than five years, and are therefore expected to be, taken together, earning less than half of a full dividend. Then the famine and strategic lines constructed since 1884 were not expected to be fully remunerative, and were constructed as an insurance against war and famine, and should not be entered by the Government in their account amongst the railways that are expected to prove remunerative. Then the strategic lines, 870 miles in length, recently constructed on the North-western frontier, cost £11,000,000, and were not expected to earn even sufficient to cover their maintenance expenses. Again, the capital expenditure upon the 2,487 miles in course of construction was not earning interest, and naturally diminished the earnings on the opened sections. Taking the matters into consideration, I maintain that the railways recently constructed, which when made were not expected to earn a full dividend, as well as those that have been opened for more than ten years, show such remunerative results that the Government should feel encouraged, even for the sake of the direct returns that are promised, to push forward railway construction in India until the whole of the country is fully developed. But the hope of such a sensible and statesmanlike policy being undertaken whilst the Secretary of State for India is controlled

by the paralysing influence of the Council is to expect too much. Sir Juland Danvers, acting as their mouthpiece, had to state at the meeting of the Society of Arts, that "Progress in all directions has been considerable, but there is no cause for boasting. More railways are required, and it is hoped that private enterprise will step in and provide what is wanted. Government has done much, but the taxes of the country cannot stand a larger demand upon them than they at present bear; and except for purposes of defence and protection against famine, the Imperial Government will probably hold its hand, and limit its encouragement to the grant of every possible facility, short of pecuniary aid, to private enterprise." The plea of the poverty of the natives of India is the old, old plea of the Council of the Secretary of State for India—it is a plea that is entirely groundless, and, if listened to, will leave the greater part of our Indian Empire in as backward a condition as it is in at present—a far more backward condition than our country was in when there was not a mile of canal or railway in the land. To show you where the obstruction to the progress of the railway system in India, and with it the progress of the prosperity of the people of the country lies, I will quote from the evidence of General Richard Strachey, given before the Select Committee on Indian Railways, which sat in 1884. He stated that "From the time that the Government of India began to borrow money for the purpose of railway enterprise in India (which goes back to about 1870), to the time of Lord Lawrence, or just after he left the Governor-Generalship, the Indian Office has acted—I do not say this at all as intending to throw blame on the Indian Office—as a restraining power. Its influence has been in the direction of moderating the disposition to expend. It is very natural that it should be so. The Government of India saw more of what the emergency and the inducement to make railways was. The Secretary of State, on the other hand, saw the risks that arose from excessive expenditure. This repressive action continued, becoming gradually, from my point of view, more severe, as I daresay the disposition of the Government of India to spend more money became more active until 1879. In 1879 a Committee of the last Parliament sat upon the subject, and they, no doubt, under the influences of the period in which the Committee sat, emphasised the necessity of putting restrictions upon the expenditure. The Secretary of State accepted these restrictions, and applied them in what I should call even a harsher way than the Committee had indicated or intended, and the final culmination of this policy of restriction is indicated by a despatch from Lord Hartington, in January, 1881, which emphasises the former orders, and adds additional restrictions and additional limitations to the power of spending money on these objects." The Committee that sat in 1884 made matters far worse for the paying prospects of the railway system in India by stopping the expenditure upon all railways that were likely to prove remunerative to the investing public by backing up the Government in its refusal to construct them, or to grant such concessions to syndicates as would enable them to put these railways at par upon the market. Without such concessions are given, or the Government decides to construct the lines, it is in the uttermost degree improbable that a single one of these railways will be built. Colonel Conway-Gordon, the Director-General of Indian Railways, in his evidence before the Committee of 1884, stated that: "The whole history of Indian railways is one long and unsuccessful attempt to get railways constructed without a State guarantee." The Committee of 1884, notwithstanding this evidence of the Director-General of Railways, determined to continue the block, and in their report they remark that "The proposed policy of the Government of India is to leave to private enterprise those lines which are commercially most attractive, and to construct, either directly by the State or indirectly through the agency of companies, those which are, relatively speaking, unprofitable, but which they consider to be indispensable for protec-

tion against famine, or for other urgent purposes. With this object the Government of India have sketched a programme of the railways with which, in their opinion, it is desirable that India should sooner or later be provided. These lines have been arranged into two schedules, A and B. Schedule B contains 34 lines, with a total length of 3,432½ miles, of which the cost is estimated at £24,288,000. These railways are all considered likely to be remunerative, and they are left to be taken up by private companies, without any aid from the Government except the grant of land free of cost. The immediate construction of these lines is not contemplated by the Government of India. We may, therefore, for the purpose of this inquiry, dismiss all consideration of them. Schedule A contains 30 projects, many of which are already under construction, the length requiring still to be made being 3,896 miles, and the cost being estimated at £28,262,450; or after allowing for the repayment of £630,000 by a company, £27,832,450. These railways are all said to be indispensable for protective or other urgent purposes. It is intended that £13,444,000 shall be borrowed by the Government, £2,100,000 by construction and working companies—that is, companies receiving a low permanent guarantee of interest—to make a line on behalf of the State, and £12,040,000 by companies working on their own account, with a guarantee of advances of interest for a limited term of years, repayable from surplus profits. The remaining £48,450 will be supplied from the provincial balances."

If you will look at the railway map of India, and remember that that country, including Burmah, contains an area of 1,570,000 square miles, or twenty-seven times the area of England and Wales, or thirteen times the area of the United Kingdom, that it is peopled by upwards of 270 million souls, a population more than seven times as large as that in our isles—and that it does not contain on an average one mile of railway for each hundred square miles of country—you may gain some idea of the backward condition of our Indian Empire. But even this gives you but a faint idea of the want of railway communication within four-fifths of the country. To grasp this you must look at the map and notice that one-half of the railway mileage in India is contained in the strip of country to the south of the Himalayas, 1,200 miles in length and 200 miles in breadth, which stretches from the mouth of the Ganges to Jhelum, containing an area of only 240,000 square miles; and that a fourth of the gross mileage is contained in the triangle lying to the south of a line drawn from Bombay to the mouth of the Godavery, which contains an area of about 200,000 square miles. The remaining area, containing 72 per cent of the gross area of India, has barely 4,000 miles of railway in it, or an average of one mile of railway to every 232 square miles of country, and this after railway construction has been carried on in the country for about 40 years. Sir Juland Danvers is certainly right when he states that the Government of India has no cause for boasting because it has constructed 14,890 miles in India during the course of 40 years. The American people opened 13,080 miles in the year 1887, and at the end of 1888 had 146,000 miles of railway to serve a population numbering about one-fifth of that of our great Indian Empire. In comparison with the populations, America is fifty times better off for railway communication than our much neglected Eastern Empire. If you will compare the map of India showing the lines in Schedules A and B which were issued with the report of the Select Committee on the East Indian Railways, with the map in the last Administration Report on Indian Railways, you will see what a great blank there is still in the completion, and even in the commencement, of lines included in Schedule A, some of these lines having been put aside to find funds for the construction of strategic railways. As to Schedule B, hardly a single line has been touched, and not a single line has been taken up on the terms which were settled by the Committee of 1884.

It is true that the Indian Council is supposed to be still squabbling with certain syndicates who have offered, if certain concessions are granted to them, to construct the Bengal-Assam Railway, which is to connect Chittagong, one of the finest seaports in India, with Makum in Upper Assam. This railway would open up the tea districts, and many great fertile and unoccupied plains, and tap the magnificent coal and petroleum fields in Upper Assam. It forms part of the connection by railway of India with Burmah, which I and my friend, Mr. Colquhoun, have urged for several years upon the notice of the Government, and is beyond doubt the most important line yet unconstructed in our Indian Empire. This section of the line, with its branches, is 742 miles in length, and is estimated to cost, at the present rate of exchange, £6,033 sterling a mile. Chittagong, and certain of the Burmese seaports, have been to this day the most neglected of our deep-water and good-sheltered anchorage seaports in India. None of them except Rangoon have a single mile of railway leading from the port inland, and trade with the interior, except for a few miles from the ports remains undeveloped. Many years ago I proposed a line of railway from our Burmese seaport Bassein to Henzadah, which would pass through a great landlocked rice-field for the whole distance, and could be constructed at a small cost. The line has been surveyed and estimated for and put on the shelf to be shown to any syndicate who wishes to inspect it any time during the next hundred years or so. Another line suggested by me many years ago was for the connection of the Rangoon and Mandalay railway with our Burmese seaport of Maulmain by railway. This line would develop a vast area of fertile country, and would form a link in our proposed through communication to China. This, too, has been pigeon-holed. Then consider the present state of Upper Burmah and its Shan States. In referring to it, Lord Dufferin said: "The construction of railways from one end of that province to the other is not only required for preserving peace among our new subjects, but it is also necessary to enable the province to assume that position of financial equilibrium which can only be brought about by the natural development of its resources." And in his farewell speech, when leaving Calcutta last year, he declared, referring to Upper Burmah, that "The more we know about the country the more extensive and the richer seem to be its resources, and the more certain it is that in the course of some years it will become an even more prolific contributor to the Indian Exchequer than Lower Burmah. In any event, the verdict of history, I am sure, will pronounce that by establishing in that unfortunate country, order, security, peace and justice, in the place of anarchy, rapine, torture, and murder, and by replacing the late king's helpless and hopeless administration by the temperate and benign rule of Queen Victoria, we have reached a consummation as beneficent as it was unavoidable." We have been in possession of Upper Burmah since November, 1835, and only one single line of railway, only 220 miles in length, has as yet been constructed in that vast province, which, with its Shan States, contains 188,000 square miles, an area more than three times as great as that of England and Wales. Not another mile of railway is yet in hand, although it is acknowledged on all hands that railways are urgently needed for pacifying, for governing, and for developing the country, and for reducing the present great police and military expenditure. Burmah is one of the few districts in India where the growth of the Government land revenue is not restricted by a permanent settlement or by long leases. Railways in Burmah, besides paying a large dividend, bring large indirect receipts from increased land revenue to the Government, which must make their construction highly remunerative to the Government. In 1877-8 the land revenue of Burmah amounted to 7,856,490 rupees; in 1886-7 it had increased to 14,477,850 rupees, or nearly doubled; and the gross revenue of the country during the same period increased from 17,617,350 rupees to 24,335,270 rupees. The whole

of this vast increase in the revenue of Burmah, with the exception of less than 4 per cent, accrued in the land revenue. This increase in the land revenue, caused partly by railways, would pay $23\frac{1}{2}$ per cent upon the gross cost of the railways at present opened in Burmah, which in 1887 gave net earnings equal to 5.55 per cent on their net capital outlay. In the Budget Estimate for Burmah for 1888-89 the gross income of the railways in Lower Burmah is put down at 34 lakhs of rupees; the working expenses at 18 lakhs, and the interest on the debt incurred for the capital outlay at a little over $11\frac{1}{2}$ lakhs of rupees. This leaves a net profit of nearly $4\frac{1}{2}$ lakhs from 327 miles of open railway. Assuming that only one-half the increase to the land revenue has been caused from the construction of railways, these Burmese railways are returning to the Government upwards of 16 per cent upon their capital outlay.

No greater blunder could be perpetrated than to fail in greatly and rapidly increasing the railways in that country. Only one-sixth of the culturable land in Lower Burmah has yet been taken up for cultivation, and perhaps one-twentieth of that in the Upper Province! What a mine for future revenue lies as yet unworked in these two provinces. If Burmah was properly opened out by railways, and population was thus induced to settle in the country, its land revenue in time would exceed the present gross land revenue of the whole of India. Here is a country, the richest in natural wealth of the whole of our Eastern possessions; here is a country where railways are paying better than anywhere else in the world; here is a country whose trade, revenue, and prosperity are truly increasing, and have for years been increasing by leaps and bounds; here is a country inhabited by a people who take seven or eight times as much of our merchandise as is taken by a similar number in the rest of our Indian possessions; here is a country that would double and treble its imports if it was further opened up by railways; here is a country, the neighbour of China, the Shan States and Siam, whose commerce would grow to vast proportions if these countries were connected with it by railway; and here is a country that the Government of India has done next to nothing to develop. Every Chief Commissioner who has been in the country has done his utmost to impress the Government with the importance of further opening up this prosperous and promising country by means of railways. The present Chief Commissioner, Sir Charles Crossthwaite, is earnestly entreating the Government of India to insist upon having the Burmese lines connected with the Indian system of railways by the construction of a line up the Moo Valley from Sagaing to Mogoung, to be afterwards continued to join the Chittagong-Assam Railway at Makum. For years past the Chief Commissioners have pressed upon the Government the advisability of connecting Henzadah with Bassein; and Toungoo and Rangoon with Maulmain or Martaban by railway. These are only a few of the lines, which would certainly be remunerative, that are urgently required for the development of Burmah. Lower Burmah had to wait until 1877 before its first line, the Rangoon and Prome Railway, was opened to through traffic, and no less than eight years were allowed to elapse before its next, and last, line—that from Rangoon to Toungoo—was completed. In that province at present there are but 327 miles of railway, and not a single mile has been built, or even commenced, since July, 1885, when the Toungoo Railway was opened to traffic. This neglect of our interests, this neglect of the means for expanding the revenues of India, this neglect of the urgent needs of Burmah, which has for years been the Cinderella of our Indian Empire, must have occurred through sheer heedlessness on the part of the Council of the Secretary of State.

Next to Chittagong and the Burmese seaports, Kurrachee is the seaport that has been most neglected by the Government of India. This port, which lies about 400 miles nearer England than Bombay does, has been long complaining that it has

been cut off from the traffic of the upper and central portions of the valley of the Ganges, because a short line has not been made to join the Indus Valley Railway, at Hyderabad, with the great system of railways lying to the east of it at Pach Bodra. There is no need for asking where railways should be built in India. The Government archives are crammed full of estimates for various projects which have been approved, but not sanctioned; and where estimates have not yet been made, as in Upper Burmah, it is well known in which direction railways are most required for developing the resources and trade of the country. We will now consider what the sparse railway system in India has done in improving the condition of the people in the districts that it has tapped. Mr. Bythell, in an admirable paper on Indian railways, published in 1887, in the June number of the Manchester Geographical Society, points out the terrible loss of life that had occurred in the ten great famines that had happened in India during this century, and instanced various districts where the people had been saved from the horrors of famine in consequence of Government and private dealers having been able to pour in stores of grain by railway and road; and I pointed out, in my address lately delivered at Blackburn, that grain could, at the present rate of $\frac{1}{4}$ d. per ton per mile, be conveyed for 2,000 miles by railway for a cost considerably less than a third of the cost of the grain at the starting point, whilst the carriage for that distance by carts would add more than four times to the cost of the grain.

Other effects that the railways have, which considerably reduce the effects of a deficient rainfall and the loss of revenue to Government, are the increasing of the wages and earnings of the people, and the giving them the chance of a variety of employment.

In his evidence before the Select Committee on Indian Railways, Mr. Chapman said: "I think that no one who went out to India, as I did in 1849, when there was not a yard of railway in the country, and who sees India under its present condition, can fail to be struck with the absolute revolution that has taken place, mainly, I believe, due to railways. I think that railways have done more than all the acts of the Government put together to infuse greater energy into trade, and the effect upon cultivation has been most marked. With a railway passing through a province it has been most marked. It has brought under cultivation large tracts of country, and I think it is inevitable that it should be so. The railway itself creates a very large number of artificers and others who are now getting comparatively good wages, and in every way, I think, it has infused a degree of 'go' and intelligence into the country which has been most remarkable."

Mr. Glover, one of the largest contractors in India, who had carried out many lines of railways, drew the attention of the committee to the fact that the ordinary rate of wages for a coolie or labourer in the country was $1\frac{1}{2}$ anna, and that wherever a railway was constructed those wages were doubled, and never went down again. A rise in wages amongst a tropical peasantry does not, as a rule, induce more luxurious living, and the family meal remains almost the same, whilst the vessels in which it is cooked and eaten, the house in which it is prepared, and the clothing and ornaments of those who earn it, all show a marked rise in cost and quality, and the people are able to put by part of their earnings for expenditure in times of scarcity, and, by that means, have sufficient to meet their own needs and so reduce the expenditure of the Government during a famine.

In the Appendix to the "Final Report of the Royal Commission on Gold and Silver" is a table showing the average wage of agricultural and skilled labour in certain selected stations in India and Burmah. Excluding Burmah and the seaports, where wages are abnormally high, I find that the average wages ruling in the parts of the country that have been opened up by railways is now $2\frac{1}{2}$ annas a day, or Rs.59 a year,

for common labourers, and $6\frac{1}{2}$ annas a day, or Rs.152 a year, for skilled labour. When we remember that in 1882 Mr. Barbour, the Financial Secretary to the Government of India, reckoned that the average wages earned in India was at that time Rs.27 per annum, and that the wages of coolies in districts tapped by railways are now about $2\frac{1}{2}$ times that amount, and that even the children in the factories are getting Rs.36 a year, it is evident what the railways have done, and are doing, in increasing the wealth and comfort of the people, and their power to meet any extra taxes that may have to be at any future time imposed upon them by the Government.

Then considering the enormous effect that the railways have in developing the internal and through commerce of the country, enabling the people to multiply their industries, and find markets for their surplus produce and their hand manufactures; and the great benefit they derive from a cheap and rapid means of transit for themselves and their goods. Even in 1884, when the rates on the railways were much higher than at the present time, and there were less than 11,000 miles of railway open in the country, General Strachey, when asked whether the construction of railways in India had increased the value of land so far as to enable the people to more easily contribute the taxes they have to pay, replied, "Certainly. The relief to the country is immense. The saving to the people of India is probably twice the gross income received by the railway companies. It is a very large sum indeed. It amounts to £30,000,000 or £40,000,000, probably, annually. The cost of transport has certainly been reduced one-third." Does this look like a loss to the poor native of India? In 1886 railways benefited the people of India to the extent of twice the gross receipts of the railway, or to the extent of about 24 per cent upon the capital outlay on the railways. At the same time a dividend of nearly 6 per cent was earned upon their capital. This shows clearly what an utter sham and absurd bogey this cry about the poor native of India being injuriously affected by the construction of railways really is, and yet he is trotted out by the council of the Secretary of State for India time after time to frighten your tender-hearted people of Lancashire into ceasing your clamour for the much-required extension of the railway system of India, upon which the poor native of India would fatten and grow rich, and Lancashire merchants, manufacturers, and operatives would thrive.

We will now turn to the military aspect of railway construction in India. In his paper on Indian Railways, Sir Juland Danvers remarks that "there is scarcely a railway in India which would not, to some extent, contribute towards the security and defence of the country in the event of disturbance or war;" and in another passage he says that "it will not be inopportune here to give a practical example of the value of railways for moving troops. During the military operations in Afghanistan, in 1878-79-80, which was the first time, except for a short period during the Mutiny, that railways in India had been called upon to afford any material assistance during war, a mixed force of 4,000 men were conveyed daily from Delhi to Lahore, a distance of about 350 miles, and of 3,000 men between Lahore and Mooltan, the lines being single. In this manner 336,000 troops, besides 80,702 horses and mules, 9,577 camels, 11,816 bullocks, 414 guns, and 2,749,605 maunds of stores, and 681,653 maunds of railway material were conveyed in the two campaigns." Then, think of the enormous saving there must be to the Government in the cost of moving and relieving troops. Before the railway from Rangoon to Tounghoo was opened, no less than 25 days were taken in relieving the garrison at Tounghoo, at a cost of Rs.49,000; when the line was opened the cost was diminished to Rs.9,400, and the time taken to two days. If this railway had not been opened at the time we annexed Upper Burmah the affair would have been much more costly than it proved to be.

Here is one of the many indirect benefits derived by the Government from railway construction in India. The saving in the general administration of the country, in reducing the number of garrisons, in cheapening postal communication, in reducing the number of highly-paid officials, in the movement of treasure and stores, and in all manner of minor matters, must be put to the credit of the railways that have been constructed. What railways have done in increasing the foreign trade of India was succinctly stated by Sir Juland Danvers in his paper. He said: "The total export and import trade has increased in value from (tens of rupees) Rx92,581,354 in 1874-5, to 155,553,267 in 1887-8. In 1874-5 the imports amounted to Rx36,222,113; in 1887-8 to Rx65,004,612, and the exports to Rx56,359,241 and Rx90,543,655 respectively."

The trade with this country has enlarged considerably, the imports into India from the United Kingdom having been Rx30,200,000 in 1874-5, and Rx57,600,000 in 1887; and the exports Rx27,600,000 and Rx35,000,000. Other countries have probably become alive to the value of direct communication, and do not use England as an entrepot, as they did before the Suez Canal was opened.

India has no reason to be dissatisfied, for the more numerous her markets the better she should be pleased. Her imports from other places in Europe than the United Kingdom in 1874-5 were to the value of Rx715,585. In 1887-8 they were Rx2,540,314. The exports had increased in the same period from Rx7,515,838 to Rx20,314,071. The trade with France has, for example, increased from Rx6,410,737 in 1877-8, to Rx8,058,917 in 1887-8. Imports increased from Rx451,000 to Rx849,000, and exports from Rx5,969,000 to Rx7,209,000. So with Italy, the exports increased in the same period from Rx1,870,000 to Rx4,527,000, and the imports from Rx2,219,000 to Rx4,898,000. With the United States the increase has been in greater proportion. In 1877-8 the exports from India were Rx1,932,000, and in 1887-8 Rx3,782,000, the imports being Rx279,717 and Rx1,030,280 respectively.

The natural advantages of locality, aided by skilled management, have largely increased the exports to China and Japan—and I may add Eastern Africa—of just those descriptions of goods which those countries require. In 1883-4 about 41,000,000lb. of twist were exported to China. In 1887-8 the quantity had increased to 92,500,000lb. Piece-goods in 1883-4 amounted to 1,462,000 yards, and in 1887-8 to 4,300,000.

The increase in the export of some of the most important articles of native manufacture was as follows, comparing 1877 with 1887: Cotton twist, 497 per cent; cotton manufactures, 149 per cent; jute, 126 per cent; silk, 151 per cent; woollen goods, 45 per cent. The total value of exports to China increased in the five years between 1874-5 and 1879-80 from Rx11,648,189 to Rx15,523,678, but in 1887-8 it was reduced to Rx13,092,000.

Trade with Japan increased from Rx3,049,000 in 1883-4 to Rx7,462,000 in 1887. The value of cotton twist and yarn exported to Japan increased from Rx7,821 in 1879 to Rx678,000 in 1887, and gunny bags from Rx7,750 in 1884-5 to Rx21,336 in 1888.

Trade with Australia appears also steadily to have increased. In 1874-5 the exports were valued at Rx135,486. In 1887-8 Rx1,125,025. And yet, with all this activity in other directions than the United Kingdom, the proportion which imports from Great Britain bear to the rest has not, after all, materially changed. In 1874-5 they were, as I have already stated, 83·4 per cent, and in 1887-8, 79·5 per cent of the whole. The value of cotton piece-goods imported from Great Britain was Rx13,697,492 in 1874-5, and Rx22,982,858 in 1887-8. Silk piece-goods increased also from Rx344,672 to Rx717,982.

The trade of India has, I believe, expanded within the last ten years more than that of any other country. This increase to the trade, which has enriched the people and added to their means of livelihood, must have been chiefly due to the development of the resources of the country by the extension of the railway system.

Having explained to you some of the advantages derived by the natives of India, through the construction of railways, I will now weigh the reasons given by Sir Juland Danvers for the do-nothing policy of the Government. These are two. The first is the heavy weight of taxation imposed on the natives of India. The second is that the present taxes cannot stand a greater strain upon them. With regard to the first, I would point out that in his speech on the Debate on the Address last year, Sir Richard Temple, one of the best authorities we have upon India, remarked that "Statistics showed that the natives of India are probably the most lightly-taxed people on the face of the earth, for it has long been our policy to reduce the rate of taxation, limit its incidence, and abolish the imposts which were enacted under native rule. As to the land tax, it mattered little whether it was used as a tax or a rent. According to the most competent administrators and statisticians who had examined the figures closely, it only amounted to between 7 and 10 per cent of the gross produce." With reference to the second plea, I would point out that the Government of India is bent upon killing the goose that lays the golden eggs. When speaking at Ashton-under-Lyne, in 1887, Lord Cross, the present Secretary of State for India, gave it as his opinion that "If it had not been for the railways in India there is no doubt that the Government revenue would have been in a very awkward condition." In 1857, India, with 151 miles of railway, had a revenue of 32 million pounds (rupee pounds); in 1887, with nearly 14,000 miles of railway, its revenue had increased to upwards of £77,000,000, and, according to Sir John Strachey, the growth of the revenue had not been due to an increase of taxation. In 1857 the foreign trade of India amounted to £55,000,000, in 1887 it was £163,000,000. Between 1877 and 1887 the gross revenue of India, excluding railway receipts, increased by £8,130,624. In 1880 the ordinary debt of India was 106,000,000 tens of rupees; by 1887 it had been reduced to 74,000,000 tens of rupees, or in seven years by more than one-fourth.

Knowing that barely one-half of the culturable land in India is now under cultivation—knowing that all available land is seized upon as fast as the railways open it up—knowing that Government, being the owner of the land, is the body most to be benefited by increased cultivation—knowing how the people will not grow more than their local markets require (and the surplus grain often lies rotting on the ground whilst famine is raging in a district a few hundred miles away)—knowing that the population is huddled together in dense masses, simply because the country is not sufficiently opened up to enable them to migrate cheaply to waste lands requiring population—knowing that famine must come some day to this ever-increasing dense population, unless migration occurs in time to avoid it—knowing that most of the world-famed mechanics of India have only local markets for their works of art, that the increase of railways would lead to the more lucrative employment of millions of the people as well as to the further destruction of the bonds in which caste has bound this industrious people and would greatly tend to raise them in the scale of civilisation—knowing that railways would greatly cheapen the price of salt and other articles of consumption to the people, as well as enormously develop the sale of European manufactures and machinery, and thus tend greatly to the welfare of both the people of India and Great Britain—knowing what railways have done for increasing the Government revenues and vastly developing the trade of the country—knowing that the loss of interest to the Government during the last 30 years has been only 37,615,975 tens of rupees, a less than the indirect benefit derived by the people of

India from them in a single year—and knowing what the extension of the Indian railway system means for our trade—I beg and I pray of you all to interest yourselves in this matter. The wealth and advancement of a State nowadays are commensurate with the extent of its railway system; and the backwardness of a Government is certainly proportional to its neglect in opening out its national resources. India, for the main part, is far away back in the Middle Ages, and promises to remain there if the sentimental railings of pseudo-humanitarians and half-educated Bengali Baboos are still allowed to clog the progress of its railway system. Railways are the most effective missionaries and grandest civilisers in the



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Map prepared by Mr. J. K. BYTHEL to illustrate address on Indian Railways.

world. It is only by the spread of railways through the country that we can awaken the natives of India to the life of the present day, that we can rescue them from the misery of famine and its consequent evils, disease and destitution, and that we can insure their future prosperity and advancement. I ask you all to use your utmost endeavours to urge upon your members of Parliament and upon the Government the absolute and urgent need, both for the extension of our own trade, the means of livelihood of our working classes, and in every way for the benefit of our fellow-subjects in India, of rapidly doubling and trebling the present sparse railway mileage in India.

CREE INDIANS OF CALGARY.

By the Rev. C. E. SOMERSET.

[Read to the Members of the Society, in the Library, June 26th. 1889.]

I WAS very pleased to receive your letter of March 13th. I intended to have sent a reply sooner, but I have my hands full of one sort of work or another. A missionary on a small mission like mine has to be everything, so that at once I am parson, school-master, doctor, and general man of all work. I have to arrange marriage difficulties, try and quiet down any little ill-feeling or misunderstanding between the Government and the Indian—in fact, I hardly know where my duties begin or end. The instructions given me by my chairman are, “Do the best you can for the people.” I hardly know what to say respecting a short paper about this country and people. It would not be a very hard task to sit down and write you a rambling letter, because I know, for the sake of old times, you would exercise a little Christian charity, but when I see the names of the gentlemen who are connected with the Geographical Society, and remember that at least in one respect they are like the far-famed John Gilpin, “carry weight,” I am just a little afraid, but as I am a few thousand miles away, and if I am hit hard I shall not know, I will do what I can.

Where I live, at Bear's Hill, the country is what is called out here “rolling prairie.” It is just past the western limit of the Great Plains of the north west, which extend some few hundred miles, and are noted for an entire absence of timber. To-day (May 1st, 1889) the plains are very barren, without any life except a few ducks and geese in the summer. The old trails are hardly used at all, as the railway does all the work. Riding in the train, the outlook is most uninteresting, but where I live all is different. Some thirty miles east of here a great change takes place, better water is found in the lakes and ponds, cottonwood, spruce, and willow grow all over. About twenty miles west of Bear's Hill we have heavy bush, spruce, cottonwood, poplar, birch, and willow covering the country almost altogether, until one reaches the Rocky Mountains, some 100 miles from here. At present this is an Indian country. We are without roads. Tracks through the bush—tracks that have been used for long past years by the Indians, as they have hunted the country (and it is a strange fact, an Indian never makes a road straight—we have often to travel almost twice the distance we need)—are almost the only roads we can find. If I were writing for an emigration society, I should point out the fact that here the land is first-rate in quality, any amount of timber for building outhouses, &c. The grass is all that can be desired, hay can be found in almost any quantity—in fact, for ordinary farming purposes, the belt of land north of the Red Deer River, for 150 miles, keeping west of the 113th meridian, is a very desirable land. The rivers, rising in the Rocky Mountains, have deposits of gold. The Saskatchewan is still being worked, but from what some of the miners tell me it is almost worked out. It would hardly pay anyone to come out here to work any of the rivers east of the mountains. Some few years ago I had the pleasure of meeting the Government Geological Surveyor. He told me that the country was full of coal, but he did not think it was very good. Coal has been found for years on the banks of the Red Deer

River, Battle River, and the Saskatchewan River, but the other day one of the Indians, in digging a well not far from my house, came across coal, in small quantities, very soft. It would be little better than wood, but still it was coal. I told the man we should all be rich now, if only he could find a sufficient quantity of the article.

Our weather is, as a rule, good. We do not get very much rain. June, July, and part of August are the months when we expect the rain; but, as a rule, we have much snow in the spring to start the crops. I sometimes see letters in the English papers in which we are informed that hardly any winter is to be found here. I do not quite understand what these people mean by winter. I have been here some years, and I have found out this fact, that the ponds freeze over in October. The ice thaws out in the day, but every night we have frost. November is the month when we have hard frosts. On the second or third of last November I saw twenty-nine head of cattle standing upon a pond at the back of my house, waiting for some one to cut a water hole. The Cree name for November is, "the month in which it freezes up." It is true the days are fine, and here we have very little snow, but still I call it winter. December, January, and February are very cold. I have lived here when the glass reached 61° below zero. In March, about the end of the month, the ponds begin to open up. The March moon is called the "Goose Moon," and we can expect before the last quarter to see geese and ducks back again. For three months in the summer we have flies, all sorts and shapes, from the small black fly to the bull dog (I don't know the correct names). So that even smoky Manchester, with its high death-rate, and (if one is to believe all that is written in your newspapers) its wicked Health Department, has charms for me yet; and if it were not for the work in which I am engaged, I would say good-bye to the prairie.

Now about the Indian himself. Well, he is not at all what I expected to find. All that I had ever read about Indians and their modes of life, their habits, &c., gave me a very wrong idea of the real article—at least, as I see him here. When we consider the Indian of to-day, we should try and picture to ourselves his past training. As far as I can judge, there are four classes of Indians whose habits are, in many cases, very unlike, the result of the nature of the hunting they have had to follow for years past. There are first the Mountain Indians, those who live in the mountains or just on the foot-hills; then we have the Wood Indians, those who have chosen the wood country in which to live; then we have the Lake and River Indians, those who have all along fished for a living; and last are the Plain Indians, those who lived upon the plains and hunted the buffaloes so long as they were to be found. The Mountain and Wood Indians in some respects are alike. They have ever been exposed to danger. The very nature of their class of hunting has made them cautious. They have always been making a study of nature and the habits of their game, which has brought their brain into action, and, as a result, they are apt to learn. Their life has been more or less full of danger, and they are now fearless of it. These men are very hard to reach—their old ideas are held very strongly, as one might expect; but when they *are* reached, and one gets the ideas of civilised life into their heads clearly, it has been worth the trouble, because they learn very fast. Their life has always been an active life. Work is therefore nothing new to them; they soon take hold of a change. On the other hand, the Plain and Swampy Indians have never lived an active life. Fishing daily for a couple of hours provides them with all the food they require, the rest of the day being spent in their lodges. This is their round of work. The Plain Crees are even worse than this. Years ago, the buffalo was their everything. The flesh provided all the food they needed; the skin was used for their clothing and tents; the dung was used for making their fires; they hunted a few months in the year—had then food enough for the rest—so that, for quite half their time, they did

nothing but gamble or fight. If it had not been for the fighting, they would have sunk so low that they would have been almost helpless. The fighting was not very dangerous as a rule. They were often fighting for weeks at a time, and no one was hurt. The fighting seems to have been, as far as I can judge, horse-stealing—horses stolen from one tribe to be stolen back again, and so on day after day. Now what has this done, this lack of work? Why, when the buffalo left the country the Indians would have died out if the Government had not taken them in hand; but the years and years of idle life had not fitted them for farm life, and, as a result, they learn very slowly—and, as was the case in the past, so long as they could be fed they were contented—and we find it is no easy task to get them to work.

It is a rather difficult matter to get hold of a real Indian. I mean one who has not been, more or less, influenced by white men. For years the North-West Mounted Police have been in the country, and for the last seven or eight years bold settlers have been taking up land in the neighbourhood of Indian reserves, and the Indian has been brought into contact with them. I need not say that, as a rule, the Indian has not learnt very much good from the intercourse. I live among the Plain Crees, and I find they are nothing more than children with the smallest ideas. When I contrast these men with some of the men I used to meet in the little mission work I engaged in when in Manchester, the contrast is the greatest one can conceive; and it is no easy task to get down to their ideas in ordinary talk. When I go from my village I am expected to get all the news of the world; but as their world is limited, I am afraid I come back with very little news. It is not a very difficult matter to get along with them. Deal with them with perfect candour, let them see by every action that the wish is to be a friend, and they are prepared to receive us. I have never had the least trouble since I have been here, although I have often had to talk to the men in a very plain manner. The chief of my people "Louis Bull," is a very fair specimen of a man. He stands 5ft. 6in., is broad and strong, his hair is long and very black, but his face is an open one, and he is straightforward in his dealings. His influence over the rest of the men is very great, and is on the side of right. When he speaks, he does so with great power and force—he speaks what he feels, and he makes even the stoical Indian feel. He is one of the most go-ahead Indians in this part of the country. He told me some time ago he wanted to live as a white man did, and he was going to watch me. When I had a well dug, he started to dig one also. I advised him to put a good roof upon his house, and to give up living in a tent, and he has done so. His influence being on the side of the missionary is one reason why my task is not so difficult. Some two years ago he joined the Church. I used to watch him Sunday after Sunday—as I preached through an interpreter—and after I had explained what was required of those who wished to live a better life, and asked any who would join the Church to say so, all were quiet for some time, when up stood "Louis," and said he had been thinking for some time and now he had made up his mind. Since then I have had very little trouble with him. Of course he does not give up all his old ideas without a little trouble; but the man is a true man.

I hardly know what to think about the future of these people. I am very much afraid they will soon be lost altogether. They do not increase in numbers. They seem to be like the game of the prairie, they cannot stand the advance of civilisation. They have no past; they know very little of what they were. Most of the ideas they have are very simple, and are not very old. They are those which have been taught them by white people, years ago, such ideas as the sun dancing on Easter morning. Of course, like people of their class, they are generally very superstitious. It is not often they will move about at night. Thunder makes them afraid; the northern lights are the ghosts of their friends who visit them again. In fact, the air is full of

strange things to them, but as you can find as much of this sort of thing at your door as I can here, it will not cause you much surprise. The medicine man is still feared, but I think his power is going. It has been found out that his power is limited, and he cannot hurt a white man, and, as a result, he has rather sunk in the eyes of the people.

I must conclude. I began this letter almost a month ago, but I had to put it on one side. I am very busy. If it is of any value to you, or of interest to your Society, I shall be very glad. I shall be most happy to write you from time to time. I have, however, offered myself for outpost work—a new work. I feel I am better at that than anything else, and I can sleep just as well upon the ground as upon a bed. I can live where an Indian can, so that perhaps I may receive marching orders some day.

Sketch Map by General Gordon.—Among his many other accomplishments General Gordon was famous even among Royal Engineers for his skill as a draughtsman. It has even been said that to it he was largely indebted for the extraordinary successes which he achieved over the Taipings, having before his appointment by the Chinese Government devoted a considerable time to a survey of the region in which the rebellion broke out. After he went to the Soudan, as the Khedive's governor-general, he usually sketched his numerous journeys, extending to many thousand miles throughout that extensive region. Mr. Edward Stanford, of Charing Cross, has just reproduced in fac-simile one of these maps. It was drawn at Khartoum on March 17, 1874, and was sent by the general to a friend in this country. It sketches the route traversed by him in journeying from Suakin to Berber and Khartoum. Thus it is not only of the deepest interest as a memento of the heroic defender of the capital of the Soudan, but possesses much intrinsic value in view of the approaching military operations along the identical route traced by General Gordon's own hand. What will add to the interest in the eyes of many are the itinerary notes in an exceedingly neat and distinct handwriting. In one of these, excellently reproduced in fac-simile, Gordon says: "Route from Suakin [he does not fall into the error of spelling the name Suakin] to Khartoum, Feb. 28 to March 13.—The road from Suakin to Berber is through an arid, mountainous country. As far as Ariab it is sparsely covered with dwarf trees of stunted growth. The wide plains are partly sand and partly black basaltic stone. From Ooback to Berber the plain is generally sandy, the wells are mere holes scratched in the beds of the rivers. During November heavy showers fall, but they are soon sucked up. Price of camel-hire from Suakin to Berber, 1½ Nap. Hire of boat from Berber to Khartoum, seven or eight Nap. The Nile rapids are dangerous to pass at night. Packages for camels ought to weigh about 150 or 120lb. The climate is very dry; hot during day and cold at daybreak." This bird's-eye view of the theatre of war is supplemented by the statement that "A steady wind from north (stronger in the first part of day) blows from the month of October till April, after which it blows from the south from May till September. The distance by road from Suakin to Berber about 258 miles. Sheep can be bought en route.—C. G. G. N.B.—The worst part of journey between Suakin and Berber is the latter half, the wells being so far apart." General Gordon's methodical character is shown by the extreme care with which, for the mere passing information of a friend, he catalogued every fact relating to his journey. The arrivals at and departures from each well or stopping-place are minutely noted to the day and hour all along the route. In addition he subjoins two notes which have some bearing on the approaching movements of our soldiers: "We left Cairo (he says) Feb. 21, arrived Suez Feb. 21; left Suez Feb. 22, arrived Suakin Feb. 26; left Suakin Feb. 28, arrived Berber March 8; left Berber March 9, arrived Khartoum March 13. The vegetation of Bahr-el-Gazal having been opened out, we ought to be at Gondokoro (leaving Khartoum on March 22) about April 15." Again the number of hours usually required for the various stages along the Suakin-Berber track is carefully contrasted with that actually occupied by himself, and it will be seen that on this occasion, as well as during his famous progress up the Nile Valley, he performed the journey in remarkably good time: "Handouba, 3 hours (we took 3 hours); Handoukh, 10 (we took 7); Goloos, 10 (7); Haritree, 10 (7); Hyab, 10 (9); Mattab, 6 (3); Ariab, 16 (9); Ooback, 24 (23); Berber, 24 (22)."—*Daily Telegraph*.

THE SNOWLINE OF THE TATRA MOUNTAINS.

By Herr KARL GRISSINGER.

[Translated by Mr. F. Zimmern, and read to the Members, April 1st, 1889.]

By means of the numerous snowfields marked on the map of the Tatra Mountains, it was possible to decide some relative values, which are tabulated at the end of this treatise. The exposure of each snowfield was ascertained, its area squared, the height of the lower snowline reckoned according to the isothermal lines (Isohypsens), and the mean height of the circumvallation of the mountain calculated from the surrounding peaks. The angle of incidence of each snowfield was deduced from the difference in height of this circumvallation, and from the direct distance of the edge of the snowfield from the chief ridge.

The tables show that there are about forty snowfields in the Tatra Mountains, pretty equally distributed on the two sides of the chief ridge, of which, however, it is noteworthy that not one has a due west exposure.

The total area of the snowfields is 0·9,344 km., so approximately the same as the Falginersee in the Oetz-Valley Alps. Almost two-thirds of the whole area lies south of the chief ridge, while only a little more than one-third belongs to the snowfields north of the ridge. The unequal height of the circumvallation of the northern and southern snowfields agrees with this, as they are higher on the lesser ridges, which stretch southwards, than on the northern ones. The fact that the chief peaks are on the southern ridges points the same way. North of the chief ridge the mean circumvallation of the snowfields is 2,196m., and south of it 2,297m., so 101m. more. The orographic snowline lies in the centre on the north side of the chief ridge, at a height of 1,800m., while on the south side it reaches a height of 1,926m. The lowest snowfields stretch on the north side to 1,600m., on the south side as far down as 1,800m.; while the highest snowfields on both sides reach a height of 2,000m. The mean temperature for the year can be pretty accurately determined from the observations of Zakopane (820m.) and other suitable stations for the north side, and of Neu-Schmacks (1,004m.) and other suitable stations for the south side. On an average, the doubtful fields reach the level of a yearly temperature of exactly 0°C. On the north side 0·2°C., south side 0·8°C.; while in the summer months the north side shows a temperature of 9·5°C., the south side of 10·3°C.; and, in the winter months, 7·8°C. on the north, and 6·3°C. on the south. The difference in height between the orographic snowline and the mean circumvallation is about the same on both sides of the chief ridge—on the north side it is 396m., and on the south 370m. The mean distance of the snowfields from the chief ridge is also not very different, only varying by 29m.

The mean angles of incidence of the snowfields are the same on both sides of the chief ridge, but the sharpness of the angles shows that the perennial snowfields chiefly owe their existence to the snow of avalanches. Frequent trials have been made to determine the climatic snowline, and with very different results, according to the method chosen in determining this snowline.

The height of the snowline in the Central Carpathians is given by Wahlemberg as 8,000 Paris feet (2,600m.). He reaches this high figure, because on the small plateau of the Krivan (2,496m.) there is no perennial snow; while the lower Pilatus (2,133m.), on the Lake of Lucerne, is always covered with snow, notwithstanding its great steepness. But Partsch has since proved that not only are the peaks of Pilatus quite free from snow each year, but even in the Schneeloch, with a north-east exposure, the snow does not lie till autumn. Kolbenmeyer assumes the yearly isothermal line of 0°C . for the climatic snowline, and deduces the height of 1,940m. Fuchs assumes the summer isothermal line of 0°C . for the snowline, and puts the height at a level of 2,573m. Both heights are incorrect, because they were arrived at from observations taken from the foot of the Tatra Mountains, and not from stations on the mountain; and besides, the climatic snowline cannot be looked upon as a thermal line.

It is just as little advisable to decide the climatic snowline of the Tatra Mountains by comparison with other chains of mountains, as Koristka has done. He compared the Tatra Mountains with the Alps and the Altai, allowing for the latitude of the former, and for the influence of the south wind on the theoretical snowline, and assumed a height of 6,900 to 7,000 feet.

By comparing valley and border stations, Beyer first calculates the mean yearly isothermal line of 0°C . at 1,600m., which number is probably incorrect. He thus arrives at 2,250m. for the theoretical snowline, having regard to the latitude of the Tatra Mountains. This number he, however, appears to think too low, for soon after he says, "It (the snowline) lies above the highest peaks, which all stare at the observer with weather-stained walls." The meteorological conditions, which are so unfavourable to the formation of snow in the higher Tatra, cause the snowline to be so extraordinary high; especially in winter the deposit is very slight, and even slighter in the higher regions than in the lower parts. Summer showers destroy the winter covering of snow; as does also the summer heat. Besides, Beyer takes the south winds into consideration, which also play a prominent part in destroying the snowfields. Now it is not correct that the deposits of winter are slighter in the higher regions than in the lower. Beyer uses very little and not very well-chosen material to characterise the deposits, and besides, even in the height of summer, there are numerous snowfields in the Tatra Mountains, not destroyed by either rain or south winds, as I know from personal observation.

Finally, the opinion of Partsch, who takes the climatic snowline of the Tatra Mountains at 2,300m. may be mentioned.

Partsch proves that in the Alps similar perennial accumulations of snow only lie 100 to 200m., never more than 300m. lower than the snowline of the relative division of the mountain, at the foot of steep, snowless precipices, which overtop the snowline by only 200 to 400m., and are not out of reach of the summer influences. Partsch has assumed 2,000 to 4,000m. for the lower snowline in the Tatra Mountains, and so, by addition of 200m., arrives at the above-mentioned height for the climatic snowline.

I certainly believe, that the appearance of snowfields in such numbers in the Tatra Mountains can only be explained by the neighbourhood of the climatic snowline. If they could be ascribed to orographic conditions only, they would probably be met with in all sheltered parts of the mountain chain. They are really met with only in the neighbourhood of the highest regions, and indeed almost entirely around the Lomnitz and Eisthal peaks. In other parts they appear singly, and almost always accumulated near peaks of 2,500m. No lower peak has a perpetual snowfield, however favourable the sheltered exposure may be for such a phenomenon. If shelter from the direct rays of the sun merely would protect the snowfields, one might assume that they would be more frequent on the north side of the chief ridge than on the

south. But the contrary is the case, and as the southern snowfields have a higher circumvallation than the northern, it is clearly seen that in the Tatra Mountains the appearance of snowfields is not regulated by the *exposure*, but by the *height of the circumvallation*. Under such circumstances, it would be safe to assume that those mountain peaks at whose declivities the snowfields are found themselves belong to the region of perpetual snow.

THE SNOWFIELDS OF THE TATRA MOUNTAINS.

NORTH OF THE CHIEF RIDGE.

EXPOSURE.		Area in Square Kilom.	Height of lower Snowline in Meter.	Mean height of Circum- vallation in Meter.	Difference in height in Meter.	Direct dis- tance from Chief Ridge in Meter.	Angle of Incidence.
North of the Krivan	N.W.	0.0203	1900	2198	298	200	56°
North of the Skorisiuk	N.E.	0.0080	1800	2033	233	240	44°
South of the Grünsee (1819)	N.E.	0.0144	1800	2133	333	320	46°
North-East of the Côte (2207)	N.E.	0.0096	1800	2035	235	800	16°
West of the Eisthal Peak	N.W.	0.0080	1900	2409	509	400	51°
	N.W.	0.0096	2000	2409	409	400	45°
	N.	0.0080	1600	2133	533	680	38°
	N.	0.0080	1600	2133	533	600	41°
North of the Eisthal Gap	N.W.	0.0112	1700	2133	433	600	35°
	N.W.	0.0064	1800	2133	333	240	54°
	N.W.	0.0128	1900	2133	233	360	33°
	N.	0.0240	1900	2315	415	360	49°
North of the Grünsee Peak	N.W.	0.0112	1900	2315	415	400	46°
	N.W.	0.0128	1800	2315	515	720	35°
	N.W.	0.0400	1800	2315	515	680	37°
West of the Weisssee Peak	N.W.	0.0272	1700	2145	445	360	51°
	N.W.	0.0192	1700	2145	445	600	36°
North of the Weisssee Peak	N.	0.0144	1800	2111	311	320	44°
		0.2656	1800	2196	396	460	40°

SOUTH OF THE CHIEF RIDGE.

EXPOSURE.		Area in Square Kilom.	Height of lower Snowline in Meter.	Mean height of Circum- vallation in Meter.	Difference in height in Meter.	Direct dis- tance from Chief Ridge in Meter.	Angle of Incidence.
South of the Meerang Peak	S.W.	0.0400	2000	2361	361	400	42°
West of the Gerlsdorf Peak	S.	0.0528	2000	2516	516	480	47°
South of the Felk Peak	S.E.	0.0544	2000	2355	355	480	36°
East of the Eisthal Peak	S.E.	0.0448	2000	2454	454	400	48°
	S.	0.0432	2000	2454	454	360	51°
	S.	0.0240	1900	2349	449	360	51°
South-East of the Lomnitz Peak	S.E.	0.0160	1900	2349	449	600	36°
	E.	0.0256	1900	2337	437	680	32°
North-East of the Keswark Peak ..	E.	0.1260	1900	2548	648	920	26°
North of the Lomnitz Peak	N.	0.1260	1900	2548	648	920	26°
North of the Keswark Peak	N.	0.0304	2000	2353	353	320	38°
	S.E.	0.0128	2000	2308	308	280	47°
East of the Grünsee Peak	E.	0.0192	1900	2308	408	520	38°
	E.	0.0256	2000	2308	308	400	37°
	E.	0.0224	2000	2212	212	280	37°
East of the Rothsee Peak	N.	0.0288	1800	2212	412	280	55°
	S.	0.0272	1800	2212	412	280	55°
	N.E.	0.0128	1800	2108	308	240	52°
South of the Weisssee Peak	S.E.	0.0304	1800	2108	308	560	28°
	S.E.	0.0384	1900	2108	208	360	38°
		0.6688	1926	2297	370	431	40°

* When the snowfield did not depend on the chief ridge, the direct distance was measured from the corresponding lesser ridge.

The climatic snowline in the Tatra Mountains should be sought at the height of the circumvallation of the snowfields—2,200 to 2,300m.—so that the highest peaks would extend about 400m. above the climatic snowline.

There is, nevertheless, not a perpetual covering of snow, because the steepness of the highest parts of the mountain prevents snow from accumulating.

On the north side, the temperature which might be expected at the height named is for the summer months 7·5°C., for the winter months 6·0°C., and for the whole year 2·2°C.; on the south side, for the summer months 8·6°C., for the winter months 7·8°C., and for the year 1·1°C.

So the mean temperature for the year of the climatic snowline in the Tatra Mountains agrees with the yearly temperature of the snowline in the Austrian Alps; while for the summer months the temperature of the climatic snowline is higher, for the winter months lower, in the former mountains than in the latter.

The Yang-tze-Kiang.—The manner in which the Chinese are treating Mr. Little's demands for a permit to attempt the navigation of the Upper Yang-tze as far as Chungking is very characteristic. The Chefoo Convention provides that Chungking shall not be opened to British trade "until steamers have ascended thither," because it was not known at the time whether the river was navigable or not. Mr. Little, having satisfied himself that it was, obtained aid in this country and took out a steamer specially constructed for river navigation. He immediately applied for a permit from the Chinese Government to make the voyage. By the treaty he was clearly entitled to this, but the Chinese have their own way of doing business. At first they would not hear of any such project; the people along the banks were unaccustomed to steamers, and would be so astonished at the sight of one that they would forthwith begin rioting, and would injure the vessel and its crew; the river was full of foaming cataracts, that would smash any steamer to atoms; the hills adjoining were inhabited by a race of ferocious monkeys, who would roll great rocks on the steamer, and who on account of their great agility could not be arrested by the local officials; the gods themselves viewed the scheme with dislike, for if they had intended the river to be traversed by steamers they would not have placed rocks and other impediments in the bed. But under the steady pressure of the British Foreign Office in insisting on the treaty rights of British subjects, these objections gradually disappeared, but not before many months had been lost. At last consent was given to the pioneer trip, subject only to one condition. To prevent the danger of collision with junks trading in the river, regulations were to be made by the authorities at Ichang, the port from which the steamer was to start. This seemed a very simple matter, occupying a few days at the very most; and Mr. Little took his departure from Peking feeling that the long-expected voyage was at last about to commence. But on arriving at Ichang he found that none of the Chinese officials there had power to discuss the regulations. This could only be done, he was informed, by officials coming from the capitals of the provinces of Szechuen and Hupeh, and for their arrival he must wait with such patience as he possessed. This was in November, and by the end of January they had not made their appearance in Ichang. Chengtu and Wuchang, the provincial cities in question, are long distances from that port, and when the officials do arrive there will probably be the usual difficulties in getting them to work, and then the result of their labours will doubtless have to be sent to their superiors for ratification, so that it may be autumn before the matter is finished and the steamer is enabled to start. Procrastination is as the breath of his nostrils to a Chinese official; but the opening of the Upper Yang-tze to foreign trade, sooner or later, is as certain as that the sun will rise in the heavens. This magnificent waterway, the natural outlet for the trade of about 70 millions of people, cannot be kept shut against Europeans indefinitely. At the same time it is to be hoped that these prolonged and costly delays will not exhaust Mr. Little's patience and means, for he has made the scheme his own, and it would be a pity if any untoward circumstance should now deprive him of the success which he has so justly merited.—*Manchester Guardian.*

CORRESPONDENCE.

AFFAIRS ON THE WEST COAST OF AFRICA.

[From a Correspondent at Lagos.]

ABEOKUTA.

JUST before leaving England last year you asked me for some information in reference to some reports regarding Abeokuta. I have recently returned from another visit to the West Coast of Africa, during which I have again been to Abeokuta. I think I may assure you that at present the authorities there have no intention to grant any favour to the prejudice of British interests, but I think something more should be done to attach the natives of the interior to our government. Whether deserved or not, we have a reputation of being slow and supine. The Egbas—namely, the people of Abeokuta—are sometimes tempted to act unpleasantly towards us. There is a disaffected section in the community by whom the loyal chiefs and others are occasionally harassed. On the occasion of my last visit to Abeokuta, in April last, intelligence had arrived respecting the Dahomian attack on Porto Novo. It was currently reported that the English had secretly connived with the Dahomians, and that a serious attempt was made to raise an anti-English demonstration. On the 7th of April (a Sunday) important deliberations were conducted by the authorities. Ebullitions of anger were here and there displayed, and an attack was expected, and a very anxious day was spent. However, the cloud passed off, and the ground of this suspicion appeared to be the fact that an influential Dahomian prince had been for some weeks residing at Lagos. On this occasion I was returning from a tour through the Yoruba country. I regret to say that the region through which I travelled was in a state of great unrest. At Jubu Ode the king and chiefs expressed their deep regret and vexation over the interminable Ibadans and Ilorins, which are sadly interfering with trade. The Ibadans, while prolonging their strife with Ilorins, are also troubled with the Egbas raiding their farms. The relations between Ibadan and Oyo are in a condition of extreme tension. At Ogbomosho complaints were loud and deep on account of the unceasing spoliation of their farms by the Ilorins, with kidnapping and occasional slaughter. I gathered further that within the last eight or nine years thirteen Yoruba towns have been destroyed by the Dahomians, and there is a further loss of seven towns destroyed last year. From what I can gather, these towns were of similar population, having about 4,000 inhabitants, while several were much larger. In my journey I passed through the ruins of some of the towns which, a few years ago, were large and influential centres of population and commerce, notably Ijaye and Biolorum Pelu. I cannot but feel that it would be an unspeakable mercy if some benevolent, civilised power could interfere to cause the chronic strife to cease, and develop the abundant riches of the country. After getting some fifty or sixty miles from the coast the country is comparatively healthy and fertile, as the plantations of cotton, indigo, &c., plainly indicate, and in some parts evidently rich in mineral treasure. I saw several iron pits and smelting furnaces, and have some specimens of the iron ore by me. I availed myself of the many opportunities afforded me in interviews with the kings and chiefs to urge upon them the necessity of peace and industry, and was received with the most generous welcome wherever I went in the Yoruba country. The reply of one chief was remarkable. He said, "You tell

us how much we should be advantaged if we would abandon our quarrels and unite for strength and prosperity. Your words are true, but we are like children fighting. Each is ashamed to be the first to stop, but both wish for nothing better than for some strong man to step between us and send us away to do something wiser." The interest you have shown in West African affairs must be my apology for sending you this communication.

PORTO NOVO AND ITS AFFAIRS.

The first intelligence I received about the recent troubles at Porto Novo was on my arrival at Abeokuta on the 4th of April last, whilst returning from a journey into the interior. The rumour was that the Dahomians had destroyed Porto Novo, and that they were encouraged to do this by the British authorities at Lagos. I remained in Abeokuta until Monday the 8th of April, and in the interval saw some chiefs who questioned me on the subject. I assured them that the British would never compromise themselves in such a way, and begged them to despatch a messenger to Lagos for accurate information. In the meantime, however, great excitement prevailed, and on the 7th a number of the natives, alarmed by sundry threats, armed themselves and prepared to defend themselves from attack. It was widely believed that the above rumour was true, and the anticipated attack was based on their connection with white missionaries, but the collision was averted. As soon as possible after reaching Lagos I went to Porto Novo, arriving there on April 22nd. I found matters in a sad condition. Out of the ten thousand people not one thousand remained. I walked through streets, some silent as a grave, with blackened walls and charred timbers on either side, and others with here and there a timid native moving furtively along. The history of the Dahomian attack, as I gathered it, is as follows: On the 27th of March, about 11 a.m., the town was agitated by an alarm that the Dahomians had invaded Porto Novo territory and destroyed five towns on the north-west, and were then encamped but a few miles away. On receipt of this news King Tofa, of Porto Novo, assembled his troops, and ordered them out to reconnoitre. They were not long before they met the enemy, and a short, sharp conflict waged. The Porto Novians were victorious, and returned to the town displaying several heads of their foes and a number of captives. Two days after, on the 29th, another engagement took place, in which the Dahomians seemed to have gained an easy triumph. The men of Porto Novo fired a volley; the Dahomians returned the compliment, and with wild cries rushed forth and carried all before them. The loud shouts of the invading army inspired them with valour and their enemy with fear. Seized with panic the Porto Novians did not attempt a second volley, but turned and fled, while others fell by the shots of the swiftly pursuing foe. Some sixty or seventy failed to come back alive. In this battle five of the principal chiefs were slain, besides other men of rank and influence. King Tofa himself then turned coward, and ran to the opposite side of the lagoon, about two miles across. Then a general exodus took place. The Dahomians, however, did not venture within the town, but nevertheless nine-tenths of the people rushed to the water side and sought to escape by their canoes. In the hurry to escape many were drowned, and of those who reached the opposite shore, shelterless, and with only swampy ground to camp on, many died. Then, doubtless caused by one of the fugitives in his terror and haste to escape, a fire broke out and consumed a large section of the town. Of course many distressing incidents occurred. During my stay in the town there was another report that the enemy was coming, and again there was a rush to the canoes attended with loss of life. The soldiers (!), with great show of valour, went to the walls, but no enemy was to be seen, although some were prowling not far away, as one or two were unfortunate enough to discover, escaping with their

lives but not without wounds. After spending a few days in exile, and finding that the Dahomians did not enter, and urged by the French commandant, King Tofa returned, and has had some French soldiers to protect him. During my stay in this place I observed that many came back to the town every day, but returned to the swampy camping ground at night. Much property has been stolen. Old King Gegele of Dahomy is dead. He died, I have been informed, a year or two ago. For a long time this fact was kept secret, nor is the time yet arrived to make it public. Before his successor can be crowned he must distinguish himself by some signal success in war. Prince Kondo is the present candidate, and is fired with ambition to take Porto Novo or to capture the King. "All I want," he is reported to have said, "is Tofa's head." A sort of French protectorate is supposed to be in vogue in Porto Novo, but it does not seem to be worth much. In conversation with several intelligent natives I found the almost unanimous wish is to be placed under British protection. On April 25th the people were much distressed by a statement of Tofa that he expected the Dahomians to enter the town in seven days. He also sent away his wives, children, and people to the opposite side of the lagoon, where he joined them that night. From a letter I have recently received from Porto Novo I copy the following extract: "The French have put up a notice calling the people home, but they have no faith in this. All they want is to see the country ceded to the British. King Tofa is now helpless, utterly rejected by his subjects. But what can he do? To fight the Dahomians is quite impossible. He has no force to do this. The French, on whom he relies, make no move. To the British Government he cannot apply for fear of the French." My correspondent says further that he has no fear of the Dahomians entering the town while the French are there, but the villages from which the town draws the chief portion of its food supplies are utterly defenceless. It would be a great pleasure to me to see the country in a more settled condition, the people dwelling in security and employing themselves in peaceful and prosperous pursuits.

The *Manchester Guardian* has the following remarks on this letter:—"The extracts from letters received by Mr. Eli Sowerbutts, which we give in another column, indicate a state of things in West Africa which is extremely unsatisfactory. Mr. Sowerbutt's correspondent has been resident for some time in Abeokuta, and he has travelled a good deal through the surrounding country. Everywhere he found strife and confusion. Where the petty chiefs are not engaged in actual war the feeling of insecurity is so great that no one can think of embarking on any trading enterprise. 'In my journey,' the writer says, 'I passed through the ruins of some towns which a few years ago were influential centres of population and commerce, and I could not but feel it would be a mercy if some benevolent civilised power could interfere to cause the chronic strife to cease and develop the abundant riches of the country.' The chiefs themselves are evidently of the same opinion. They would gladly, we are assured, place themselves under the protection of Great Britain. They seem to themselves 'like children fighting,' they would willingly give it up and turn to something wiser, if only the 'strong man' were to turn up and separate them. At Abeokuta the writer learned of the attack on Porto Novo by the Dahomians. The only ground for the attack is the desire of a young chief of Dahomey to distinguish himself. The old king is dead, and before a successor can be elected he must give some signal proof of valour. The head of King Tofa of Porto Novo alone will satisfy the aspirant to the throne, and a rumour has unfortunately got abroad at Abeokuta that he and his followers are encouraged in their raids by the British authorities at Lagos. The country generally is in a very deplorable condition, and trade is at a standstill. It is not easy, however, to devise any immediate and effective remedy. In

South Africa we have taught the native chiefs the virtue of self-restraint, and they are not ungrateful for the enforcement of the lesson, but there we had no rival keeping a jealous eye over every one of our movements. On the West Coast it is different. France is guarding King Tofa at Porto Novo, and the English authorities at Lagos have to be careful not to tread on French susceptibilities. The result is that no one will move very energetically, and the petty chiefs look for the strong man in vain."

[From the Very Venerable the Rev. Chauncy Maples.]

Lukomo, July 15th, 1888.

Dear Mr. Sowerbutts,—Many thanks for your letter of date March 22nd. I received it about three weeks ago, but had not time to answer it at once. As yet the north-end fighting has not affected us or our position on this island, and we are all in hopes that matters may be settled satisfactorily. At present the Ilula is up there, we believe, and at least twenty whites are engaged in the fighting. We have received no news of their recent doings, but we suppose that some sharp and severe action has been taken with the Arabs. Personally I cannot but think that our Consul—Consul Hawes—has acted wisely and humanely throughout, though the feeling against him is strong and rather widely shared. So far as I have heard, and so far as I have been able to form an opinion, my confidence in him as our representative in these parts remains unshaken; and I am glad to take this opportunity of emphasizing this, especially as it is likely you have heard, or will hear, much on the other side. Our work goes on here very satisfactorily on the whole, I trust. Mr. Wilkins and I are practically alone here, for Mr. Johnson lives entirely on the "Charles Jansen," and she is but seldom in port here. You see *Central Africa*, I think, and so you know most of our news. I hope to return to England next year, when I hope to see you again. My sister mentions a kind letter you sent her. She and my people generally have had many trials and afflictions lately, and I dare say it might help to cheer them up if I can manage to get to England next year and see them all.

We are expecting our new centre-board boat out very soon—indeed, I think we shall probably have it up here in a fortnight, for the "C. J." has gone down to Matope, and will probably, or, perhaps, I ought to say possibly, bring it up in tow. My work, however, keeps me very closely to the island. My sister has a MS. account* of this island—its geology and natural features, its inhabitants, &c. I think you might be interested in it, if you care to apply to her. I wrote it last year.

I amuse myself now in my leisure moments chiefly with music, an art I have loved from my earliest years. I am not a great performer, I need hardly say, but I get a great deal of amusement out of the harmonium we have here, and lately I have been giving time to the study of harmony and composition. My duty is mostly taken up in teaching in the schools and adult classes. Only last Sunday I admitted 28 adult women as catechumens: it was an interesting service. We have as yet only baptised six people on this island. We put all our converts through a long probation. Heathenism is a tree with deep roots, and they are not easily or quickly dug up, as you know. I am thankful to say I enjoy perfect health out here, and although I am now a missionary of more than twelve years' standing, I feel as fresh, if not fresher, than when I first came out. I shall be much interested to read the report of the conference.

* This article will be found on page 59, &c.

REVIEWS.*

THE MINERVA LIBRARY OF FAMOUS BOOKS. Edited by Mr. G. F. BETTANY, M.A. 400 to 600 pages. 2s. Illustrated and Maps. *London: Ward and Lock.*

THESE reprints of famous books will be a great acquisition to those who are unable to obtain the original issues. The scheme covers a wide range, but we have to confine ourselves to the books issued dealing with our special subject. Of these we have seen Darwin's "Journal of a Voyage Round the World;" Wallace's "Travels on the Amazon;" Galton's "South Africa," with Vacation Tours, including A Visit to North Spain at the time of the Eclipse of 1860, by Mr. Galton; Nábloos and the Samaritans, by Sir George Grove; and "Naples and Garibaldi," by Mr. W. G. Clark, M.A. The books are very handy for reading, and well printed. Two of them contain indices, and are illustrated with sketch maps, views, portraits, &c. The members of the Society will be pleased to have their attention directed to this admirable series. The object of the series is to provide, at a moderate cost, a selection of the greatest writings in the world.

THE WORLD'S GREAT EXPLORERS AND EXPLORATIONS. Edited by Messrs. SCOTT KELTIE, MACKINDER, and RAVENSTEIN. About 300 pages, fully illustrated, with portraits, views, maps, and indices. 3s. 6d. per vol. *London and Liverpool: G. Philips and Son.*

THE issues are "John Davis," by Mr. Clements R. Markham, and "Palestine," by Major C. R. Conder, R.E., and there are promised in the issues works on Magellan, Franklin, Saussure, Park, Livingstone, Ross, Bran, Vasco da Gama, Humboldt, Barentz, Columbus, Cook, and others. If the succeeding volumes are equal to those mentioned above, the publishers will have placed the students of geography very much in their debt. The books are well done, and the maps and illustrations add very greatly to the value of the works. Major Conder's "Palestine" is a book of very great value. The maps alone, rendered by a competent authority for the first time in a shape within the compass of all, are especially valuable. The work of the Palestine Exploration Fund has been going on for years, and yet, except in a very limited circle, the results have not been known. This book will give some idea of the difficulty with which the work was prosecuted, and the great service done to all those who are interested in Palestine, whilst at the same time there is now placed within the reach of all interested in the right understanding of the Old and New Testaments information which has hitherto been beyond their reach. No Sunday school is complete without the wall map issued by the Palestine Exploration Fund at a very small cost, and no Sunday-school library or student's library will be complete without this most interesting and beautiful book. The life of John Davis by Mr. Markham is delightfully written, and brings this old history before us very vividly, and we feel, as we lay the book down, that "we gratefully accept this book, not only in regard of our friendly regard towards him, but of our love for his favourable courtesy." We

* See also pp. 172 and 232.

sincerely hope the publishers may be encouraged in this venture until the whole series have been issued, when our British public will have had placed in their hands the stories of peril, adventure, and heroism, with a great mass of scientific knowledge, for a few shillings, such as can otherwise hardly be obtained at any price.

MEMOIRS OF MRS. REBECCA WAKEFIELD. By R. BREWIN. 236 pp.
Portrait and Views. 1s. 6d. *London: A. Crombie.*

THIS is a simple and touching story of the life of a devoted woman, and will well repay perusal. Mrs. Wakefield was the first wife of our member, the Rev. T. Wakefield, who has spent so many years of his life on the East Coast of Africa. Mrs. Wakefield went with her husband to that country, and laid down her life there. The memoir is simply written, but the very lack of garish tribute adds pathos to the story.

VARIOUS SUBJECTS. By C. H. STOTT. 274 pp.
Manchester: J. Cornish.

THESE are a series of reprints of articles from newspapers, written by Mr. Stott at various times. Some of the articles are particularly interesting. They range from Clubs, Tall and Little Men, the Children's Hospital, the Manchester Jubilee Exhibition, to the Bible Society and the Singing Frog. Some of the articles are serious, and full of matter for thought. Others are intended to be humorous, and are full of fun. Mr. Stott's friends will value these reprints, and doubtless many will be surprised at the range of subjects placed before them in this little book.

INTRODUCTION TO THE STUDY OF COMMERCIAL GEOGRAPHY (Part I.)
Map Drawing and Projections from Memory, &c. By Mr. J. J.
CARDWELL. Illustrated with a number of diagrams and projec-
tions. *Manchester: John Heywood.*

THIS little book is the amplification of addresses given by Mr. J. J. Cardwell to several meetings of teachers during the Exhibition of Geographical Appliances held by this Society two years ago. The book is one which must be of great value to all teachers, and the matter is made so plain that, whilst there may be no royal road to learning, this book has made the road considerably easier. It is a straightforward statement of the author's ideas on the subject, and is largely the result of his practical work. The greater part of the book is taken up with the theory of map drawing and projection, but the two last chapters of the book, dealing with "The Importance of the Study of Commercial Geography" and "The Teaching of Commercial Geography" are particularly valuable. Our members will be glad to see the syllabus Mr. Cardwell used, and is using, in his commercial geography classes at the Harris Institute, Preston, the Manchester and Stockport Technical Schools, and the higher classes (evening) of the Manchester Board Schools. The publication of the Rev. L. C. Casartelli's "Notes on Commercial Geography," Mr. A. Hughes's "First Book on Geography," and this one, all by members of this Society, will, we trust, show that some of us are trying to awaken a keener interest, not merely in the more scientific relations of geography, but to the practical application of the great truths and facts of the science to every-day commercial life. Mr. Cardwell's syllabus is as follows:—

SYLLABUS OF LECTURES ON COMMERCIAL GEOGRAPHY AND
PRACTICAL COMMERCE,

at the Technical School, Manchester; the Technical School, Stockport; the Harris Institute, Preston; and the Higher Commercial Classes under the Manchester School Board.

THEORETICAL.

I.—ECONOMICAL GEOGRAPHY AND COMMERCIAL HISTORY OF COUNTRIES, comprising their present internal resources and external sea-borne commerce, with a study of the special points mentioned after the name of each—

1. *Lancashire*, illustrating the laying of the foundations of modern trade and commerce, or the rise and development of the textile manufacturing industries—especially cotton—and the rise and development of modern means of communication—especially the railway.
2. *Great Britain and Ireland*, with a study of the rise and development of our commercial supremacy.
3. *Our Colonial Supremacy and the Commercial Federation of the British Empire*, with a special study of (a) Canada, (b) South Africa, (c) Australasia, as sources of raw materials, fields for emigration, markets for finished goods, or rival producers.
4. *Our Great Industrial and Commercial Rivals—France, Germany, and the United States*.
 (a) France, as an agricultural country, contrasted, from an economical point of view, with Great Britain, a manufacturing and a mining one.
 (b) Germany, illustrating the advantages and disadvantages of such commercial combinations as the old Hanse League and the modern Zollverein, with special reference to the commercial federation of the British Empire.
 (c) The United States, studied as our provider, best customer, and greatest rival.
5. *The Balkan Peninsula and the Eastern Question, from a Commercial Point of View*.
 (a) Old Turkey, New Europe, and the Highway to India.
 (b) Greece, or the Britain of the Mediterranean—the lessons to be learnt from a study of the rise and decline of her colonial and commercial supremacy in the past, with the application of those lessons to the case of the colonial and commercial supremacy of Britain in the present.

II.—ECONOMICAL GEOGRAPHY, COMMERCIAL HISTORY, AND TRADE IN PRODUCTS.

1. *The Geographical Distribution of the More Important Economic Plants and Animals*, with the reasons for the same.
2. *Bread Plants*, with the trade in Grain.
3. *Beverage Plants*, with the trade in Tea, Coffee, and Cocoa.
4. *Clothing Plants*, with the trade in Cotton and Linen Goods.
5. *Wool-producing Animals*, with the trade in Woollen Goods.
6. *The Geographical Distribution of the More Important Economic Minerals*, with the reasons for the same.

PRACTICAL.

The study and examination of actual specimens of the *materials of commerce*, in their raw state, in the progress of manufacture, and as finished goods, with illustrations of the various processes involved in their production, to all which the particular attention of the student is specially directed.

PROCEEDINGS OF THE SOCIETY

FROM APRIL 1ST, 1889, TO JUNE 30TH, 1889.

EIGHTY-NINTH MEETING.

A joint meeting of the Chamber of Commerce, the United Cotton Spinners' Association, and this Society, was held on Friday, April 5th, 1889, at 3 o'clock p.m.; Mr. HENRY LEE, J.P., in the chair.

Mr. HOLT S. HALLETT, C.E., F.R.G.S., &c., addressed the members on "The Necessary Extension of Indian Railways for the Development of British and British Indian Trade." (See pp. 181-7.)

The address was illustrated with large maps, and was listened to with great interest.

A hearty vote of thanks to Mr. Holt Hallett was carried unanimously.

Mr. HALLETT responded.

Thanks to the Chairman were given by acclamation.

NINETIETH MEETING

Of the Society, held in the Memorial Hall, on Tuesday, April 9th, 1889, at eight o'clock p.m.; Sir J. C. LEE, Kt., J.P., in the chair.

Mr. JOSEPH THOMSON, F.R.G.S., addressed the members "On Impressions of Morocco and the Moors." (See pp. 101-118.) The address was illustrated by maps and lantern views.

The Rev. S. A. STEINTHAL moved a vote of thanks to Mr. Thomson for his address, Mr. HILL (Mr. Thomson's host) seconded the motion, which was supported by Mr. DOWDALL, who objected to some of Mr. Thomson's remarks on the condition of the Jews in Morocco. The motion was passed unanimously.

Mr. THOMSON replied to Mr. Dowdall's remarks by saying he thought the condition of the Jews was the result of centuries of cruel oppression, and acknowledged the vote of thanks.

The Rev. T. WAKEFIELD moved a vote of thanks to the chairman, which was seconded by Mr. M. STIRRUP, F.G.S., and carried heartily.

Sir JOSEPH LEE responded.

Mr. J. F. Hutton apologised for non-attendance, he being away from home ill.

A number of announcements were made, and the meeting closed about ten o'clock.

NINETY-FIRST MEETING

Of the Society, held in the Library, on Wednesday, April 17th, 1889, at 7-30 p.m.; Surgeon-Major J. M. BLACK, M.R.C.S.E., of Edinburgh, in the chair.

The minutes of meetings held March 20th (89th), April 5th (joint meeting), and April 9th (90th), were read and approved.

The election of the following members by the Council was announced:—

ORDINARY: Messrs. Wm. Aldred, F.C.A., Wm. Armitage, J.P., J. P. Leslie, Emil Liebert, H.I. Majesty's Consul for Germany, Wm. Marlbor, J. Newall, J. H. Reynolds.

ASSOCIATE: Messrs. A. Ellison, Binns Kershaw, H. Yule Oldham, M. L. Tait, and Mrs. M. Roebuck.

The following letters were read :—

From Mr. R. P. Goldschmidt, in reply to the vote of condolence on the death of his father :—

“ Manchester, March 22nd, 1889.

“ Dear Sir,—I am in receipt of your kind lines of March 13th, and request you to convey to the members of the Manchester Geographical Society the sincere thanks of myself and all our family for the kind words of sympathy with us in our bereavement.—I am, dear sir, yours very sincerely,

“ R. P. GOLDSCHMIDT.

“ Eli Sowerbutts, Esq.”

From the Ven. Archdeacon Chauncey Maples, Lukoma (see p. 205).

From the Madrid Geographical Society, stating terms of membership in that society, and the rules of the society, as follows :—

GEOGRAPHICAL SOCIETY OF MADRID.

Articles of its Statutes, Royal Order of 11th November, 1885, and Resolutions Concerning the Use of the Medal Granted by Government as Distinctive Attribute of its Members.

EXTRACT OF THE STATUTES OF THE SOCIETY OF 21ST MARCH, 1876.

Article 18. The Society is formed by an indefinite number of members, with free residence foreigners being admitted under the same conditions as Spaniards.

Article 21. Members are admitted in an ordinary meeting, entrance having been solicited either personally or through another member.

REAL ORDEN.

MINISTERIO DE FOMENTO.—*Universidad*.—Al Director general de Instrucción pública digo con esta fecha lo que sigue :

Ilmo. Sr.: Accediendo á lo solicitado por la Sociedad Geográfica de Madrid, S. M. el Rey (q. D. g.) ha tenido á bien autorizar á los individuos de la expresada Sociedad para que en toda clase de solemnidades y actos científicos usen medalla ajustada al modelo presentado.—Lo que de R. O. traslado á V. E. para su conocimiento y demás efectos.

Dios guarde á V. E. muchos años. Madrid 11 de Noviembre de 1885.—ALEJANDRO PIDAL.—*Excmo. Sr. Presidente de la Sociedad Geográfica de Madrid.*

ARTICLES OF THE STATUTE OF 16TH NOVEMBER, 1886, FOR THE USE OF THE SOCIETY MEDAL.

Article 1. The medal may be used by : (1) Honorary presidents, honorary members, and honorary corresponding members. (2) Life members.

Article 4. It is a necessary requisite for the use of the medal by life members to have paid the entrance and life fees.

Article 7. The member who resigns his membership, or should be excluded by the Society, loses his right to the use of the medal. If it should come to the knowledge of the Society that any person uses the medal unlawfully, the Society may demand responsibility to the said party. It will furthermore publish in the fourth sheet of the cover of its “ Bulletin ” the name of the offender, and besides, if he were a member, will be immediately excluded from the Society ; and, not being a member, notice will be taken of his name and address to impide his entry into the Society.

Article 8. Members of the Geographical Society, who have a right to the use of the medal, may and should use it in all sort of solemnities and scientific acts in which they represent the Society or merely assist as members of same.

Article 9. Foreign life members on their entry into the Society will receive, on payment of 315 pesetas, the diploma, the statutes of the Society, the medal, and copy of the Royal order authorising the use of same.

MARTIN FERREIRO, Secretary.

From the Paris Geographical Society, in reference to the forthcoming Congress of Geography in Paris ; and other letters of interest.

NINETY-SECOND MEETING

Of the Society, held at the Technical School, Princess Street, Saturday, April 27th, 1889, at three p.m. The members were received by the secretary, Mr. J. H. Reynolds. The members (about 160 ladies and gentlemen) first visited the wood-carving and mechanical engineering departments in Princess Street, and afterwards went through the spinning and weaving departments in Peter Street.

Mr. REYNOLDS, in explaining the different objects of interest, said that the school was composed of day and night students, and that most of the tools were made by well-known Manchester firms. Some were given to the schools, whilst others, made by the teachers and students together, were also a gift. The whole of the machinery was worked by a gas engine. Besides wood carving, there was a complete course of instruction in mechanical construction and drawing, chemistry, plumbing, printing, &c. He might mention, as being of interest to them, that he was endeavouring to arrange for a course of lectures on commercial geography and history, and he hoped that at the commencement of next session the arrangements would be completed, with a sufficient number of pupils to take an interest in these two subjects. On arriving at the Peter Street schools, Mr. Reynolds explained that these schools were formerly used as a Swedenborgian chapel and school, and when it came into the hands of the Technical Schools the council decided to use the schools for spinning and weaving. The whole plant had been given by Messrs. Dobson and Barlow, of Bolton. The instruction given here was in connection with the Manchester textile trades. Around the walls they would see a set of chromo-lithographs illustrative of various designs of Eastern carpets, and they would also notice a fine series of steel engravings, presented by Mr. William Agnew, of men celebrated in mechanics :—

1. Crompton, the inventor of the mule.
2. Roberts, the inventor of the self-acting mule.
3. Arkwright, the founder of the factory system.
4. Heilman, the inventor of the improved power loom, and other improvements.
5. Jacquard, the inventor of the jacquard loom.
6. Fairbairn, the eminent machine maker and engineer, of Manchester.
7. Radcliffe, the inventor of the dressing machine.

After the different processes had been explained, the members adjourned to the model-room, and held a meeting, Mr. O'CONNOR being in the chair.

Mr. HAINSWORTH then moved, and Mr. A. A. KRAUSS seconded, a vote of thanks to Mr. Reynolds for his kindness in inviting them there that day, and for his interesting explanation of the different processes they had seen that afternoon.

Mr. REYNOLDS, in reply to the vote of thanks, said he was pleased to welcome the members of the Manchester Geographical Society, and he hoped they had spent a pleasant and profitable afternoon. They had now in the schools 3,200 individual students, but yet there were a large number of students who were unaware of its

existence. The staple industries of this great city received adequate illustration both here and at Princess Street. He was glad to find that they had been impressed by what they had seen, and he should be pleased to welcome any of the members of the Society who might wish to visit the school on a future occasion.

The thanks of the members to the Chairman closed the meeting.

NINETY-THIRD MEETING

Of the Society, held in the Memorial Hall, on Wednesday, May 1st, 1889, at 8 p.m.; Mr. Councillor B. T. LEECH took the chair until the arrival of the Rev. S. A. STEINTHAL, who afterwards presided.

Mr. ARTHUR MONTEFIORE, F.R.G.S., addressed the members on "Florida and the English." (See pp. 129-150.) His address was illustrated with photographic views and map, and Mr. Newett had very kindly lent a set of photographic slides of Florida, which were ably shown by Mr. STANLEY.

A number of questions were asked and replied to.

A vote of thanks was moved to Mr. Montefiore, and seconded, and supported by Mr. W. H. NEWETT, and carried.

Mr. MONTEFIORE responded.

A vote of thanks to the chairman closed the meeting.

NINETY-FOURTH MEETING

Of the Society, held in the Library on Monday, May 13th, 1889, at 7-30 p.m.; Mr. B. J. BELISHA in the chair.

The Secretary made announcements of future arrangements, and of presentations, as follows:—

Mr. Carl Flemming, Glogau. Map of Samoa.

Commander G. Holm. Two Monographs on Greenland.

Senor F. Latzina. Account of the City of Buenos Ayres. Vol. 1.

The Tyneside Geographical Society. A Famine Map of China.

Messrs. W. and A. K. Johnston. Map of England and Wales. Four sheets in cases.

The Cobden Club, by Mr. T. B. Potter, M.P. Thirty publications.

Mr. Moir Crane. "Garenganze."

The thanks of the Society had been sent to the donors.

Mr. WM. ASHMAN addressed the members on the Cape Colony, the Transvaal, and Natal. His address was illustrated with map, photographs, water-colour sketches of flowers, and with specimens of minerals, and was listened to with great interest.

A very long conversation ensued between the members and Mr. Ashman.

Mr. ALDRED moved, and Mr. O'CONNOR seconded, a vote of thanks to Mr. Ashman, which was heartily carried.

Mr. ASHMAN responded.

The death of Mr. John Slagg, one of the founders and a vice-president of the Society, having been announced, it was resolved, on the motion of Mr. WM. MOSLEY, seconded by Mr. F. RADCLIFFE, and supported by the Rev. L. C. CASARTELLI—

"That the members of the Manchester Geographical Society, at its first meeting held after the death of Mr. Slagg, begs most respectfully to sympathise and condole with Mrs. Slagg and her family on the sad and early close of a brilliant career, and desire to place on record their peculiar sense of the loss this Society has sustained in

the death of one of its founders, and one of its most hearty friends ; and that the Secretary be requested to forward the resolution."

The resolution was carried by all the members rising in their places.

A vote of thanks to the Chairman, and a few words of reply from him, closed the meeting.

NINETY-FIFTH MEETING

Of the Society, held at the Ardwick Museum, Ardwick Green, on Friday, May 17th, at 7-30 p.m. ; Mr. B. O'CONNOR in the chair.

Mr. H. Hyde received the members and conducted them through the museum, explaining that the intention of the establishment was the popularising of the study botany, natural history and geology, and the usefulness of the contents of the museum as a reference for students.

The members were very much interested in Mr. Hyde's description and the collection he had personally gathered.

A very hearty vote of thanks was given to Mr. Hyde for his invitation to visit the museum, and for his lengthy and interesting explanatory address.

Mr. HYDE responded, and a vote of thanks to the chairman closed the meeting.

NINETY-SIXTH MEETING

Of the Society held at the General Post Office, Saturday, May 25th, at 4 o'clock Fifty of the members were received by Mr. R. W. Johnston, the Postmaster, and being divided into three parties, were conducted by him and Messrs. Ambler and Mason, his assistants, through the whole of the building—the working of the different departments being fully explained. The visit took up a considerable time, and was most thoroughly enjoyed.

Each party thanked its respective conductor, and left to the Council the duty of suitable acknowledgment to the Postmaster.

NINETY-SEVENTH MEETING

Of the Society, held in the Library, Wednesday, May 29th, at 7-30 p.m. Mr. J. SNADDON in the chair.

Minutes of meetings held April 9th (90), 17th (91), 27th (92), May 1st (93), 13th (94), 17th (95), 25th (96), were read and approved.

The election of the following members by the Council was announced :—

ORDINARY : Messrs. T. H. Birley, Rd. Hambly, G. C. Haworth, Matthew Hilton, Charles Rowley, John Walkden, E. Wright.

ASSOCIATES : The Misses M. E. Watts and F. E. Watts, and Messrs. J. A. Bottomley, J. W. Brierley, Edward Hinners, W. Jackson, J. Kirkham.

The following presentations were announced :—

The Author. *Nunquam's Notions.*

Academy of Sciences, Bologna. *Report of Progress of the Movement in Relation to the Unification of the Calendar, &c.*

M. G. Rolin, Avocat. *Chronique du Droit Internationale*, No. 5.

Lieut.-General Brackenbury. *Map of Eastern Turkish Armenia*, two sheets.

Mr. O. Andreasian. *Kiepert's Map of Asiatic Provinces of Turkish Empire.*

Mr. Carl Flemming. *Maps of Asia and South America.*

Herr J. H. de Bussy. *Map of Guiana, South America.*

New Corresponding Society announced. Finland Geographical Society, Helsingfors.

Correspondence was read and announcements made for the June and July meetings and excursions.

The following addresses were then read :—

HISTORICO-GEOGRAPHICAL MEMORANDUM CONCERNING THE CREATION OF NEW COUNTIES IN NORTHERN MINNESOTA.

By Mr. A. J. HILL, St. Paul, Minn.

[Read to the Members, in the Library, Wednesday, May 29th, 1889.]

In former years it was the praiseworthy custom of the Territories and States of the North American Union to endeavour to do honour to and perpetuate the memories of those adventurous men of the white races who had, as traders, missionaries, commanders, and otherwise during the seventeenth, eighteenth, and first half of the nineteenth centuries, penetrated the wild regions out of which the understood political divisions were subsequently framed ; and also the memories of those others whose deeds of courage and enterprise had materially contributed to their permanent welfare.

Moved, therefore, by such disinterested sentiment, the people of the North-west have, from time to time, named many of their most important geographical divisions, their counties, after men such as those referred to. Thus, for example, we find of the earlier class, arranged in chronological order, the following :—

1 In the State of Illinois, admitted into the Union in 1818, *Menard* and *La Salle*, amongst its 102 county names.

2. In the State of Michigan, admitted into the Union in 1837, *Marquette*, *Charlevoix*, *St. Clair*, *Schoolcraft*, and *Baraga*, amongst its 82 county names.

3. In the State of Iowa, admitted into the Union in 1846, *Dubuque*, and *Floyd*, amongst its 99 county names.

4. In the State of Wisconsin, admitted into the Union in 1848, *Marquette* and *Langlade*, amongst its 68 county names.

5. In the State of Minnesota, admitted into the Union in 1858, *Hennepin*, *Le Sueur*, *Carver*, *Morrison*, *Cass*, *Beltrami*, *Aitkin*, *Nicollet*, *Pope*, and *Stevens*, amongst its 80 county names.

In this showing, Minnesota appears to greater advantage than the other States quoted, but that may be attributed to a large extent to the interesting hydrographical fact that three great rivers, the St. Lawrence, the Mississippi, and the Red River of the North, have their ultimate sources in its highlands.

Whatever may be the case with the first four States, the list for Minnesota by no means contains all the earlier names, but the time has gone by when the remainder could be brought into prominence by being attached to county areas, as a glance at the map will show.

Of the many deserving names excluded from this cartographical immortality, the principal ones are *Groscilliers*, *Radisson*, *Perrot*, *Pancho*, *Verendrye* and *Marin*, of the time of the French domination ; and *Thompson*, *Pike*, *Schoolcraft*, *Long*, and *Whittlesey*, of the succeeding Anglo-Saxon period. Now to those who think it would be well were the names of a few of these men put upon our maps in the way indicated, I would like to show that there is yet a way in which it can be done. As to selection, that should be made on a very proper rule that the name of an explorer should only be applied to a tract over some part of whose soil his feet had passed.

Forty years ago, the whole territory of Minnesota was rudely blocked out into nominal counties, some of them of very large size. As time went on the increase of population made subdivision necessary, and new counties were created at almost every session; but this increase and this subdivision were in a general direction from south-east to north west, leaving the northern third of the State, outside of the Red River valley, almost unaltered till to-day. The time is rapidly approaching, however, when some further division of this region will be necessary, *i.e.*, that comprised within the boundaries of St. Louis, Cass, Itasca, and Beltrami counties, which has ceased to be looked upon as fit only to supply the small wants of the wandering savage, and furnish ultimate fields of operation for the enterprising lumber-man.

In view, therefore, of all the foregoing considerations, the following comprehensive scheme, might perhaps furnish useful suggestions when steps are taken to establish new counties in the far north of Minnesota.

I.—RADISSON COUNTY

Could comprise so much of Itasca county as lies north of an east and west line running on some lines of the U.S. surveys through Town 62 of the fourth meridian, and Town 151 of the fifth. Such a line would leave the proposed county entirely within the watershed of the Rainy Lake river.

Groseilliers and Radisson were two adventurous Frenchmen, and the very first white men known to have visited Minnesota, as they wintered in the villages of the Sioux of the Lakes (*i.e.*, in the present Mille Lacs country), in 1661-2. On the same occasion they also visited their former acquaintances, the Christinaux (now the Crees) or a band of them, distant seven days' journey, which must have taken them to the neighbourhood of, or across, Rainy Lake river, as that nation was scattered, or wandered about, all along the country from Lake Winnipeg to Lake Superior. As a name for a county, that of Radisson is preferable to Groseilliers, for the former word, when used by English speaking people, would be much more correctly pronounced than the latter; besides this, Radisson was the one who wrote the journal of their travels, the publication of which, a few years ago, first revealed the names of the tribes and places that they visited.

II.—VERENDRYE COUNTY

Could comprise so much of Beltrami county as lies north of the line between Towns 156 and 157. By this line the proposed county would be entirely within the hydrographical basin of Rainy Lake river and Lake of the Woods. This would fully clear Red Lake, and allow it to remain in the parent county, which was named after the man who first brought it, as well as the Turtle river sources of the Mississippi, to public notice—in 1823.

By the adoption of this name an able but unfortunate man would receive a fitting, though tardy, local acknowledgment of his merits. Verendrye was the first (in 1731) to explore and follow as a trade route, the lakes which form our northern boundary, and it was in connection with his enterprises that they were first mapped and brought to the attention of the French Government. He built forts, or trading posts on Rainy Lake river and Lake of the Woods (west side), as well as others beyond to the westward and north-westward.

III.—THOMPSON COUNTY

Could comprise as much of Itasca county as lies south of the proposed county of Radisson, above described. It will be noticed that the name "Itasca" would be done away with by the creation of these two counties, but no reasonable man would object to that, seeing it was a pure misnomer in the first place. To have to explain

for all time to come that Lake Itasca is not in Itasca county on the one hand, or that Itasca county does not possess the sources of the Mississippi river on the other, is a state of things which should be avoided, if possible.

David Thompson was an expert surveyor, who was in the service of the great fur companies of British America for many years. In 1798 he travelled through northern Minnesota, and ascertained, amongst other places, the geographical position of the trading post on the north shore of Red Cedar Lake, the same afterwards, and still, called Cass Lake, by reason of the visit there in 1820 of Governor Cass and his party.

IV.—WHITTLESEY COUNTY

Could comprise so much of the northern part of St. Louis county as includes Lake Vermilion, the southern boundary being the line between Towns — and —, *i.e.*, some line which would suit the vested interests existing in that recently-developed mining country.

It is to Colonel Charles Whittlesey, deceased, that we are indebted for a valuable report on the geology of Vermilion Lake and St. Louis river, published by the State in 1866.

The creation of four such counties as thus described would practically complete the geographical division of the space between the Mississippi river and our northern frontier, leaving it to time to develop the resources of each, and bring around such settlement as would justify its admission to the number of its organised fellows. If this be done now, the list of counties to appear in next year's census will probably not differ much from that to be used in 1895, and even from the further one of 1900, which would tend to facilitate the statistical work of the future.

AUSTRALIA.

"Curiosities of Australia," a geographical lesson, by Mr. WILLIAM ASHBURN.

The address was prepared with the object of adding to the popular knowledge of the great island continent, and was intended to be a model lesson in geography.

After describing the general uninformed ideas upon the subject in the public mind, Mr. Ashburn advanced to the purely geographical portion of his text, giving the boundaries, extent, and general features of the country. Advancing a little, there was some notice of the geology of Australia, and the prominent surface strata being gone over, a survey of the important geological differences was attempted. Some peculiar fossils were described, amongst others the labyrinthodon (the lecturer spoke somewhat disrespectfully of this ancient reptile as a "Manx alligator"); and the absence of the strata of the secondary epoch was commented upon, and shown to have had much to do with subsequent developments.

It will be seen that the phrase "Curiosities of Australia" promised very little. But still, treating the subject with a geographical purpose, no feature which was capable of investing the subject with interest was neglected. The climatic discrepancies, the biological absurdities, the floral monstrosities were brought forward in due course as aids to the mind of the student in fixing locality, distance, and configuration. The diversified surface of Australia was thus fairly brought to the mind of the listener, and he was able to follow the lesson of the address, and acquire an idea of the wonders of the land, with its deserts of sand, of stone, of marsh, and even of mud; also of its extent of coast without river. It must be remembered that the great Australian Bight is miles in length, and has no stream at all, not even a rivulet, running over its arid cliffs to the sea. Then there were named and described the vanishing and reappearing lakes, and last of all the numerous instances of rivers without outlets. The second portion of the address was

devoted to the history of the country. There was reviewed, first, the early discoveries, the first of these being a Portuguese discovery in 1601, with subsequent Dutch and French discoveries, and finally the first English visit by William Dampier. Then Captain Cook's visits, and then the early convict settlements, and so on to the present times. The last portion of the address consisted of selections from accounts of the various explorations of Australia, the march of Charles Eyre, and the almost incredible hardships he endured in traversing the great Australian Bight; the scarcely less marvellous adventures of Sturt in discovering and exploring the great river Murray; the sad and tragic story of Burke and Wills's journey across the centre, with others. In conclusion, Mr. Ashburn said that all he had found time to say was only an indication of the various subjects of interest which students of geography would find in Australian geography.

The chairman and others took part in the discussion of the several addresses, and the thanks of the meeting were cordially given to the readers of the papers. Mr. Ashburn responded for them and for himself.

The death of Mr. J. J. Armitage, one of the members of the Society having been made known to the meeting, it was moved by Mr. W. ALDRED, and seconded by Mr. F. E. JACKSON:—

"That this meeting of the Manchester Geographical Society having heard of the death of Mr. J. J. Armitage, one of the members of the Society, this meeting desires very respectfully to offer to the family of Mr. Armitage its very sincere sympathy in this loss, and begs to add its condolence on the very sad event."

The resolution was carried unanimously.

A hearty vote of thanks to the chairman closed a most interesting and prolonged meeting.

NINETY-EIGHTH MEETING

Of the Society, held in the Memorial Hall, on Wednesday, June 5th, 1889, at 7-30 p.m.; the Rev. S. A. STEINTHAL in the chair.

The Chairman received the members at seven o'clock, and they spent some time in examining a number of geographical and technical boxes kindly brought from Liverpool by Mr. Silberbach, and a series of wall cartoons lent by the Religious Tract Society.

Mr. J. H. SILBERBACH, one of the managers of the Wirral Diocesan Schools, addressed the members "On the Teaching of Elementary Commercial Geography in Primary and Secondary Schools, and in a Minor Degree of Elementary Technical Instruction." (See p. 151-171.)

At the close of the address the Rev. A. S. STEINTHAL said: We have listened with much pleasure and interest to Mr. Silberbach's address, and I am sure he has added to our information on the subject with which he has been dealing.

Dr. CASARELLI said that Mr. Silberbach had touched upon so many subjects, all of which were interesting and important to us—especially interesting from an educational point of view—that he hardly knew what to remark upon first. He might say, however, that the boxes which had been brought before them that evening were excellent aids to the teaching of geography, for which very little had been done in this country. He could not but feel that the list of subjects was already overcrowded. At the same time many of these subjects were only old friends under new names. It was a good idea to send these boxes round from one school to another, and in this way a very large district could be served. He thought that schools that were able to do so

should form similar collections for themselves, and thus encourage their pupils in trying to gather together specimens as well as they could. These boxes might be supplemented by the teachers, and the mere fact of collecting would be a most excellent training for the staff and pupils. It would be more valuable if they were to make their collection, first, of the local industries. He, however, thoroughly approved of the collection which had been shown them that night. Mr. Silberbach must have had great difficulty in getting the specimens together. It was not only of importance to have such collections, but teachers should be able to use them. Simple lessons on the climate, the soil of the country, and their characteristics, with specimens of the products, were invaluable in teaching geography, otherwise it was something like teaching Euclid without figures. Geography, in some form, ought to be a very important part of the education of every child, and in that he cordially agreed with Mr. Silberbach. He was also at one with him in condemning the rigidity of our system of education. Not only in England had we carried out this "cast-iron" system, but, strange to say, it had been carried out even in India. An examination paper set at a native school, in Madras, for native pupils, who were learning English, was very much like the papers of the University of London. Passages from an English author were set, asking for explanations of some old, mediæval, quaint expressions, and these had to be got up by natives of India! What real use could such questions be to a native learning the English language? It seemed to him to show the impractical nature of the education we were forcing upon the people of India, and a good deal of that kind of thing was carried on at home.

Mr. WARDLE quite agreed with the value of this kind of teaching, and so far as regarded the elementary schools, he ventured to say that they had been well in advance of the teaching of the secondary schools in this subject. But one thing they should bear in mind, the teachers of elementary schools had not a free hand in the matter. Inspectors of schools required certain things doing. He, however, would say that, for every subject that was included in the code, the subject of geography, as illustrated by specimens, had been taken up by masters and mistresses, who had been at great pains to accumulate many specimens in order to illustrate their geography lessons. Boxes like those shown were tolerably expensive, and beyond the reach of ordinary schools. The present code would have to be much altered before these things could come into practice. He was glad to think that the outlines of the new code promised better things. At present they had to teach the children according to what they were expected to be examined in. He believed in the teacher examining his own class. It had been objected that this step would only result in cramming, but he thought that any inspector, in five minutes, would see whether such was the case. What they wanted was encouragement, and the paper read to-night, together with the very valuable collection shown there, was a step in this direction. In the exhibition given by this society some time since, there was a map of England illustrating the different industrial centres, such as Manchester, Leeds, Bradford, and Macclesfield.

Mr. Councillor LERCH wished to add his testimony to the admirable address to which they had listened. He thought that if boxes of this kind, illustrating English products, were circulated first among the different schools, then the foreign products could afterwards be taken. With regard to modern languages, we had been very backward in our large towns, and if our young men would only get well grounded in modern languages it would greatly facilitate matters in going abroad.

Mr. J. H. REYNOLDS said Mr. Silberbach had furnished a valuable illustration of teaching through the eye as well as through the ear. One of the causes of the barrenness of our educational system was that the children were not kept at school

long enough. Children left school at far too early an age. Out of $4\frac{1}{2}$ millions there were in the 7th Standard only 47,000. In Matthew Arnold's report of eighteen months ago he pointed out the superiority of the German system, which kept their children longer at school, and had their knowledge consolidated. At Wolverhampton, 97 per cent. of the children attending school left at the age of $11\frac{1}{2}$ years. He asked how could they expect that any education could be secured by keeping children from the school at this early age, when, in the course of two or three years, they forgot all they had ever learned, and the consequence was they got them back again into the evening schools as absolutely ignorant as if they had never been at school. He advocated children being shown round such places as the technical schools, where they could see every process carried on and investigate the method of doing it. It was through the eye and the fingers, as well as the ear, that people must be taught. It was this kind of education that was wanted. He moved that the best thanks of this meeting be given to Mr. Silberbach for his interesting and instructive address.

Mr. CARDWELL, referring to Mr. Reynolds's remarks that children should have the opportunity of visiting such places as the technical schools, said that they need not go very far for specimens; and he took the opportunity of mentioning that they had excellent museums at Peel Park, Queen's Park, St. Bede's College, and the animals at Belle Vue. He had great pleasure in seconding the resolution.

Mr. H. YULE OLDHAM, in supporting the resolution, said nothing could be more delightful than in seeing these boxes, which he thought particularly interesting in teaching geography. So far as the higher schools were concerned, the teaching of geography was simply abominable. These boxes seemed to him to explain clearly and systematically what things were. Geography ought to be as important as languages. It ought to be the foundation of history, and there should also be taught physical geography and geology, and, of course, commercial geography would come in.

Mr. Silberbach replied, and a vote of thanks to the Chairman for his conduct in the chair terminated the proceedings.

After an interval for refreshments and music Mr. Silberbach had conversations with a number of the members, who, being engaged in education, were very much interested in the subject and the exhibits.

During the evening music was again given by Miss Edith Webster (piano), Miss Clara Walker, Mr. G. V. Webster, and others.

The thanks of the Society were cordially given to the chairman and to all who had contributed to make the meeting of so pleasant a character.

NINETY-NINTH MEETING

Of the Society, at St. Bede's College, Alexandra Park, on Saturday, June 22nd, at 3 p.m. His Lordship the Bishop of Salford, Monsignor Wrennall, Monsignor Gadd, Rev. L. C. Casartelli, and the staff of the College received the members.

After an inspection of the Commercial Museum, the Rev. L. C. CASARTELLI, addressing the members on the Museum—its contents, usefulness, and value for educational purposes, said: This little museum is primarily intended for use in the teaching of Commercial Geography. In 1876 the Bishop of Salford gave me a sort of roving commission to visit certain schools abroad with a view to studying their systems of commercial education, and in my very first report I referred to the desirability of forming such a commercial or geographical museum as this. When at the well-known Commercial College of Mille, near Ghent, which possesses one of the most complete

and admirably arranged museums of the kind which I have seen, I asked M. Bernardin, who has formed it, how he had managed to get together such a capital collection. "I began," he replied, "with a sheet of writing paper." Little by little, by asking different firms for specimens, and especially by visiting the various international exhibitions and obtaining donations, he had gathered the present very complete museum. We have done the same. We are indebted to many firms, especially to those represented at our Manchester Exhibition of 1877, for very handsome sets of specimens. Also the Victorian and Canadian Commissioners at the Paris Exhibition of 1878, and still more several Colonial Commissioners at the Colonial and Indian Exhibition of 1886, have sent us valuable and interesting contributions. Speaking generally, the museum falls into two chief sections: (1) Collections of the raw materials of different branches of trade and commerce, and specimens illustrative of manufacturing processes (see cases A to M, comprising salt, spices, beverage plants, dyeing, soap, candle, and varnish making, brewing, sugar trade, flax, cotton, silk, steel, cutlery, chemicals, &c.); and (2) geographical and ethnographical collections, illustrative of various lands and peoples, but principally of our own colonies (cases N to GG, comprising Victoria, Canada, West Africa, Fiji, British Guiana, India, West Indies, Asia, Africa, Australasia, various parts of South and Central America). I should like also to call your attention to the cards, about a hundred in number, of the series called "*Le Musée Scolaire*," published in Paris and Brussels. You will see them on the walls of our corridors. Of these, some are merely pictures. Others carry actual specimens of raw or manufactured materials. I was told that the London School Board had purchased some sets of them, but, unfortunately for English schools, all the explanations are printed in French. Many of us had the privilege of admiring Mr. Silberbach's admirable collection of "boxes" for teaching Commercial Geography at a former meeting. Excellent as they are, I think that institutions which have the opportunity should be encouraged to form collections of their own of this kind. Of the utility of such collections, whether in boxes like Mr. Silberbach's, or on cards like the *Musée Scolaire*, or like this museum, there can be no doubt in the mind of any teacher.

Mr. SOWERBUTTS said that the Society had taken a new departure in having these visits. What they wanted was to know Manchester, and they were just beginning to find out the wealth of the city and the district immediately surrounding us in institutes similar to those they were visiting to-day. One advantage, he thought, of Mr. Silberbach's cases of specimens over a museum like this was that they could carry the specimens from school to school, but he saw no reason why the Manchester School Board should not have a central depot, where the selected children could have their instruction in Geography and Natural History. I would like to make one more remark. To-day I received a programme of an atlas to be issued by Hachette & Co. This specimen showed us how hopelessly we were behind in map making. In England we did not make maps, we only made diagrams.

After the museum, the members proceeded to inspect the Science Lecture-room, and the collection of chemicals, and natural philosophy instruments and mathematical models. They also went through the practical laboratory lately opened, which affords complete accommodation for eight pupils at analysis work. In this department, the science master, Mr. F. Landolt, exhibited and explained a number of valuable instruments, many of his own construction, showing his "projectograph" apparatus for demonstrating perspective, mathematical models, a new and complete orrery, &c.

Mr. FRIDOLIN LANDOLT, in receiving the members in the Laboratory, said: Some years ago, when it became quite fashionable to teach Solid Geometry, Perspective, &c., even in the most elementary schools in England, any trained teacher could not help

thinking: how is it possible that those branches of mathematics, which are taught abroad only in the advanced classes and in technical schools, can be explained properly to children with scarcely any foundation? Reflections of that sort, and the anxiety to impart a sound knowledge of such a complicated nature, must have compelled many a teacher to construct apparatus illustrating geometrical dimensions, not only on a sheet of paper but also in the space. It would lead us too far to explain the whole series of apparatus and models placed before the visitors. We limit ourselves, therefore, to the outlines of a particular instrument, called by the constructor "projectograph." Although rather complicated, on account of a great number of mechanical contrivances, the projectograph can easily be handled by a skilled teacher. Besides, it will be servicable for a complete course of three or four years, not only for solid geometry or projections, but also for perspective. Fixed on a movable stand, it can be raised or lowered according to the height of the student, folded together after use, and kept in the polished case free from dust. The chief parts of the projectograph are two planes, namely, the picture plane, represented by a transparent glass pane, and the ground plane, represented by a horizontal folding leaf. The operation is very simple. The teacher applies one eye to the station point, a pinhole in a vertical disc, and draws with his right hand on the perpendicular glass pane the object placed behind the picture plane. After this he replaces the glass pane by a transparent canvas, through which any number of black silk threads up to forty may be drawn from the station point to the corners of the fixed object. These silk threads represent the rays of light passing from the object through the canvas and united in the eye of the spectator. At the same time the teacher will refer his experimental illustrations to the geometrical construction and compare the projected lines drawn from the centre of vision, point of distance, vanishing and measuring point with the other silk threads which cross the space in different directions. The student not only sees at once the coincidence of the picture drawn on the glass pane and canvas with the geometrical construction, but he grasps also the relation between reality and geometrical drawing, and thus enjoys a sounder and more interesting knowledge than by grinding a dry and confused mechanism. Constructor can state from experience that students, after a long groping in the dark, scarcely can give any reasonable account of their own work, which is soon forgotten, whilst experimental illustrations make such a strong impression on the young mind that, should a great part of theory be forgotten, the practical part can easily be revived. It would be impossible to give a full description in a few lines and without any diagrams, but the constructor of this instrument will always be highly pleased to show and explain it to anyone who takes interest in the subject. An application to the rector of St. Bede's College, Monsignor Wrennall, will be sufficient. One or two advantages may be yet mentioned. As a large amount of measuring is connected with projection and perspective, much time would be required. To reduce actual measuring the operator, when fixing the object, has simply to read off the distances from scales, which run along the sliding parts. Almost an endless variety of positions can be realised by the large amount of sliding and woodwork. Thus the interest for a subject, dry as it may appear to the beginner, is kept up through a long and graduated course. It may also be mentioned that our projectograph is equally useful for class and private teaching, as well as for practical work, because large objects as furniture and machine parts, if placed on the floor of the room, can be introduced.

Mr. CARDWELL next gave an address to the members on "The Teaching of Commercial Geography."

Mr. SOWERBUTTS: We are very fortunate indeed to have Mr. Cardwell give this lecture to us. He has been lecturer at the Harris Institute, Preston, and their report

gives a very appreciative account of Mr. Cardwell, and only regrets there were not more pupils. He was also about to give a series of lectures to the Technical Schools this session. Mr. Cardwell is also one of our members; and we are pleased to say that in the matter of education we have forced the question of geography to the front in our universities. But while Oxford and Cambridge—which in comparison are exceedingly wealthy—have chairs for geography, Victoria University, which represents the commercial element, has not been helped to have a professorship of geography founded.

The members were shown over the College buildings, and on the invitation of Monsignor Wrennall had tea.

After tea, several admirable recitations were given by the Professor of Elocution.

Professor CORE moved, Mr. W. T. EVANS seconded, and Mr. JACKSON supported a motion that the very best thanks of the Society be tendered to Monsignor Wrennall and the staff of the College for their very kind reception, and for the opportunity of examining an Educational Institution so complete, admirable, and beautiful.

The Rev. MORLEY STEVENSON moved that our thanks be given to Dr. Casartelli and Mr. J. J. Cardwell for their interesting addresses. Mr. W. WARDALE seconded the motion, and it was heartily carried.

Mr. SOWERBUTTS said it would be interesting to know that the Bishop of Salford, who took such a lively interest, was one of the founders of the Society. He was also concerned in a previous movement which ended in chaos. But out of that darkness came light. This Society was helped into existence by his lordship, and fostered by the late John Slagg. But not only was his lordship a founder, but the Bishop has stood by us and is one of our vice-presidents. Dr. Casartelli has been one of the council, and Monsignor Gadd a vice-president from the beginning. Although we have lost some of our members by death, their memory is green; and if the Society does its work it will tell its tale for years to come, when those who have stood by it have been laid low.

The Very Rev. Monsignor Canon WRENNALL responded. He said: I am exceedingly grateful to you for your thanks to myself and my colleagues. It has been a great pleasure to us to see you here to-day. The college has not got into its teens, but I have no doubt when it gets into manhood it will be better worth going over. We have always taken a great interest in the Manchester Geographical Society, and I rejoice in their success.

After the responses from Monsignor WRENNALL and others, the members visited the College cricket field and dispersed, having had a very great amount of enjoyment.

(This list of the contents of St. Bede's College Commercial Museum was prepared for the use of the Members, and is of value as a guide to others preparing College or School Collections.)

Only the cases of interest for Geography, Ethnography, and Industries, are lettered (A to GG). The remaining cases are for Natural History, Geology, Antiquities, &c. The names in square brackets are those of donors.

A.—SALT. Rock Salt. Sections of strata (red sandstone) bored in piercing for rock salt on the banks of the Tees. Specimens of rock salt. [Messrs. Bell Bros. Limited, Middlesbrough.] Brine. Salt obtained from brine. The same refined. [Mr. T. M. Walsh.] Salt from Victoria.

UTILISATION OF SO-CALLED "WASTE" NATURAL PRODUCTS. Exemplified by Tissues made of seaweed in Australia (East Kempsey, McLeay river). "Cosmos" textile material and cloth (50 per cent wool), made of nettle fibre, Ghent. [Prof. Bernardin, Melle.]

VARIOUS PRODUCTS.

B.—SPICES. Comprising mustard (*Sinapis nigra* L.), in seeds and ground; pepper (*Piper nigrum* L.), black, white (*i.e.* bleached); long pepper (*P. longum* L.); pimento, allspice, or Jamaica pepper (*Eugenia pimento* D.C.); anise (*Pimpinella anisum* L.); ginger (*Zinziber officinale*, Roscoe) also bleached and ground; cayenne (*Capsicum annum* L.); nutmeg (seed of *Myristica moschata*, Thunb.), and mace (envelope of nutmeg); cassia, or bastard citron (*Cinnamon cassia*); clove (*Caryophyllus aromaticus* L.); caraway (*Carum carui* L.); cinnamon (*C. Zeylanicum*, Nees). [Mr. Leake.]

PLANTS YIELDING STIMULATING BEVERAGES, and containing the element like "caffeine":

(1) Tea: collection of Chinese and Indian teas. [Mr. J. F. Mart, J.P.] Ceylon tea. (2) Coffee: Bahia coffee. [Mr. C. Vaughan.] Other coffees in cases. (3) Cocoa: Bahia cocoa, Ceylon cocoa, [Mr. C. Vaughan]; cocoa flowers beans, and nibs. Vanilla Pods (*Vanilla aromatica*). South American orchid, used to flavour chocolate. (4) Yerba Maté, or "Paraguay tea" (*Ilex Paraguayensis*—species of holly), the South American beverage plant. (5) Kola Nuts, West Africa.

C.—DYEING WOODS AND VEGETABLES: [Messrs. E. D. Milnes and Bro., Lunn Mills, Bury.] (1) Brazil Wood (*Cæsalpinia Brasiliensis*, natural order Leguminosæ) from Brazil. (2) Fustic (*Morus tinctoria*, natural order Articiacæ), West Indies. (3) Logwood (*Hæmatoxylon Campechianum*, natural order Leguminosæ), Campeachy, S. America. (4) Nicaragua Wood, species of No. 1: Nicaragua. (5) Lima Wood, species of No. 1. (6) Barwood (*Baphia Nitida*, natural order Leguminosæ), Sierra Leone. (7) Sapan Wood (*Cæsalpinia Sapan*, natural order Leguminosæ), Siam, Japan, and East Indies. (8) Logwood (common, see 3), Jamaica. (9) Camwood (species of *Baphia*, natural order Leguminosæ), West Coast of Africa. (10) Sanderswood (*Pterocarpus sandalinus*, natural order Leguminosæ), India, Ceylon, East Indies, &c. (11) Young Fustic (*Rhus estinus*, natural order Anacardiaceæ), West Indies and South Europe. (12) Weld (*Reseda luteola*, natural order Resedacæ), Europe. (13) Valonia (*Quercus ægilops*, natural order Cupuliferæ), Levant and Spain. (14) Madder Roots (*Rubia tinctoria*, natural order Rubiacæ), Holland, France, Italy, Turkey, &c. (15) Sumac leaves (*Rhus coriaria*, natural order Anacardiaceæ), Sicily. (16) Extract of 15. (17) Quercitron bark (*Quercus tinctoria*, natural order Cupuliferæ), U. S. A. (18) Extract of 17. (19) Myrobolans (*Terminalia chabula*), India. (20) Gall Nuts (*Quercus infectoria*, natural order Cupuliferæ), Turkey and Levant. (21) Turmeric (*Curcuma longa*, natural order Zinziberacæ), India, China, &c. (22) Persian Berries (*Rhamnus alaternus*, natural order Rhamnaceæ), Persia and Turkey. (23) Extract of 22. (24) Extract of 2 (Fustic). (25) Extract of 7 (Sapan). (26) Extract of 3 (Logwood). (27) Divi-Divi (*Cæsalpinia coriaria*, natural order Leguminosæ), S. America. (28) Cochineal (black), name of insect, *Coccus Cacti*; Mexico, Teneriffe, &c. (29) Cochineal (silver), name of insect, *Coccus Cacti*; Mexico, Teneriffe, &c.

D.—MATERIALS OF SOAP MANUFACTURE [Messrs. Gossage and Sons, Widnes]: Palm fruit, palm kernels, palm oil, Congo palm oil, palmmut oil, cocconut oil. Cotton seeds (Egyptian), cotton seed oil. Rosin, tallow. Caustic soda, carbonate of soda, bicarbonate of soda, silicate of soda, alkaline solution of soda (100 degrees Tw.), silicate of soda, neutral, solution of ditto (75 degrees Tw.). Soap: Gold medal pale, prize medal blue mottled. Glycerine, extracted from spent soap dyes.

MATERIALS OF CANDLE MANUFACTURE [Price's Patent Candle Co., London]:—Raw palm oil, tallow, rough glycerine obtained from palm oil and tallow by lime saponification at high temperature; palm oil after acidification and distillation, material for composite candles, or for pressing for stearic acid; stearic acid hot pressed from preceding intermediate materials, soft fatty acids, obtained from pressing of preceding. Paraffin scale: Drained paraffin, the preceding freed from sand, and exposed to heat on a porous bed; semi-transparent paraffin, ready for candle-making; refined paraffin, the same finished with ivory black; blue oil, the

heavy mineral oil expressed from paraffin scale ; mineral lubricating oil, prepared from preceding by distillation and treatment with sulphuric acid and alkali ; oleic acid, expressed from preceding ; cloth oil, for wool scouring, prepared from preceding.

FOSSIL RESINS FOR VARNISH MANUFACTURE. [Messrs. Robt. Ingham, Clark, & Co., London.] "Animi," East Coast of Africa, shipped from Zanzibar. "Amber," shores of Baltic and Russian Lakes, also Japan. (Specimen of amber enclosing an insect). "Kauri," semi-fossil produce of coniferous tree, Dammaris Australis, New Zealand. "Mastic" exudation of Pistacia lentiscus, Isle of Chios. "Damar," exudation of D. Orientalis, shipped from Batavia and Singapore. Varieties of "Copal," *African* ; "clouded in African mystery, both as regards sources of supply and trees that produce," and shipped from Accra and Lisbon ; *Sierra Leone*, only shipped from that port, but obtained in beds of rivers, "foundation of all fine varnishes and of superiority of English varnishes all over the world ;" *Benguela and Angola*, found in Central Africa. *Pebble Copal*, West Coast of Africa. *South American*.

E.—BREWING MATERIALS. Materials for Irish Stout and Whisky. [Messrs. John Plunkett and Co., Dublin.] Irish barley ; pale malt, for brewing and distilling, made from ditto ; patent crystallized malt ; patent roasted barley ; amber and brown malt ; patent roasted malts, dark and medium ; maize, prepared and roasted.

BEER BREWING SUBSTANCES. [Messrs. Boddington, Strangeways ; Gatehouse and Yates, Ardwick ; Mr. Worrall, Stockport.] Hops : "Canterbury Grapes" and "Goldings" ; Worcestershire, 1880 ; Canadian ; Bavarian. Malt. Saccharine used as substitute for malt.

SUGAR, AND ITS REFINING. [The Sankey Sugar Co.] Raw cane sugar, Peru, Jamaica, Manilla. 1st Process : Sugar melted with equal weight of water. 2nd Process : Liquor filtered through fine cotton bags ; dirt thus removed, mites and other organic matter and soil ; animal charcoal, for removing colour, &c., from sugar liquor ; liquor after passing charcoal ; sugar liquor boiled and crystallised ; ditto pulverised.

F.—FLAX AND LINEN CASE. [The Island Spinning Company, Lisburn, Ireland]. Flax straw, flax scutched, dressed flax : Courtraï, Irish, Dutch. Flax yarn in process of spinning, finished linen yarn and thread, finished linen yarn and thread dyed, bobbins of linen sewing thread, Macramé lace. Flax and hemp seeds, Canada. In frame over case, Specimens of Linen Manufacture, [The late Mr. Maurice Williams]. Linseed, flax flowers dried, flax straw, flax retted, flax scutched, flax prepared for spinning ; Irish, Dutch, Russian, French, Belgian, Frisian flax. Linen yarns, different shades, grey, cream, bleached, dyed, &c. Woven linen : brown, mantle, diaper, ticking, damask, lawn, cambric, various drills, &c. ; same bleached, dyed and printed.

G.—COTTON CASES. [Various donors] Cotton seeds : American, Indian, Fiji Cotton pods. Raw cottons : Peru (indigenous and anterior to Spanish Conquest), Fiji, British Guiana, American, Brazil, India, Egypt. (The following varieties are represented : Orleans, 14 qualities ; Memphis, 4 qualities ; Savannah, 6 qualities ; Sea Island Cotton ; Brazil ; Indian, 4 qualities ; Egyptian, 5 qualities.) Spinning and Weaving Processes : (1) Raw cotton, (2) same after going through opening machine, (3) after finishing lap machine, (3a) droppings from lap machine, (4) after carding engine, (4a) fly waste from 4, (5) after drawing frame, (6) after slubbing, (7) after intermediate frame, (8) after throstle spinning frame, (9-11) twist, reeled, dyed indigo, dyed turkey red. Specimens of yarn, warp sized, weft, cloth.—Native Mysore cloth. [Mr. Sowerbutts, F.R.G.S.]

H.—SILK CASE, in four divisions : Division I. Italian silk. Development of the silkworm (*Bombyx Mori*) ; eggs ; cocoons on bush and opened ; leaves of mulberry ; silkworm moth ; "silkworm gut," for fishing lines ; "Strusa," or waste silk ; hanks of raw silk of various shades ; Italian, Japanese, Chinese, raw, organzine, and tram silks. [Miss M. L. Casartelli, and others.]

Division II. Indian silk : Cocoons of *Bombyx Mori*, Madrassee "ovened" or artificially dried ; Madrassee, sun-dried ; Desi, or November bund cocoons, sun-dried ; Burmah cocoons ; Desi pierced cocoons ; hanks of Indian silk. [Messrs. Matheson & Co., London.]

Divison III. Bengal silk : Very fine raw silk reeled in the usual Bengal method, from (1) Gonatea, (2) Cossimbazar, (3) Rangamati, (4) Benjeti. [Messrs. Anderson Bros., London, agents for the Bengal Silk Company, Behrampore.]

Division IV. Tusser silks : Cocoons and moth of the Tusser silkworm (*Antheraea mylitta*) ; cocoons of the Tusser silkworm opened ; reels of Tusser silk. Cocoons of *Tricula trifenestrata*, India ; of *Saturnia Faidherbi*, Gambia, West Africa. [Messrs. Matheson & Co.]

K.—ILLUSTRATIONS OF THE THOMAS GILCHRIST OR BASIC PROCESS OF STEEL-MAKING [Percy Gilchrist, Esq.] All these very fine specimens are knotted, twisted, bent, folded, punched, &c., cold.

L.—ILLUSTRATIONS OF CUTLERY MAKING [G. Gadd, Esq.] Other metals.

M.—ALUM OCTAHEDRA [Messrs. Peter Spence and Sons, Manchester.]

N.—VICTORIA, AUSTRALIA. Collection of products presented by the Colonial Commissioners at the Paris Exhibition (1878), and the London Colonial Exhibition (1886). Wool—Fleeces (ewe and lamb) greasy and washed, from various estates. Fuller's teasels (*Dipsacus fullonum*) for wool cleaning. Grains, pulse, &c. Peas, beans, lucerne, sorghum, "poor man's tea," hops, maize, wheat, oats, barley, rye, canary seed, &c. Gold—Facsimile of the celebrated Welcome Nugget (Ballarat, June 11, 1858, gross weight, 2,195 oz.) ; models of gold cake, Bendigo (now Sandhurst), weighing respectively 1,050, 714, and 3,868 oz. Models of fruit (see case GG). Woods (see case U, also floor of museum).

O.—CANADA. Products presented by the Commissioners at the Paris Exhibition, 1878. Grains and pulse : Oats, wheat, barley, maize, peas, beans, vetch, millet, buckwheat. Seeds : Flax, clover, grasses, onion, mangel-wurzel, beet, cucumber, melon, squash, carrot, turnips, tomato, parsnips. Case at side with ears of cereals. Toronto.

P.—WEST AFRICA. [Presented by Sir James Marshall, C.M.G., Commissioner, Colonial Exhibition, 1886.] *Sierra Leone* : Maize, Guinea corn ; probó or 'gpergun' fibre ; coffee ; palm nuts ; *Physii* nuts (*Iatropha curcas*) ; gum ; rice ; in husk and cleaned ; cotton of "silk cotton tree ;" maluka seed ; indigo ; ginger ; agoussie, or cogee ; tingee, or soosoo ball grain ; cinnamon, "Ambeck ;" chillies ; cocoa-nut fibre ; rice ; benni-seed. *Gold Coast* : Cotton, "silk cotton" and pod ; lor fibre ; fruit of the doom palm ; ginger, raw ; kola nuts. *Lagos* : Cocoa, ogea gum, shea butter seeds. *Gambia* : Ella (fruit of the doom palm), vegetable sponge (*Luffa Ægyptiaca*), castor-oil seeds (*Ricinus communis*), pods of faftan, or silk-down tree (*Asclepias gigantea*), Santong gum, ground nuts (*Arachis hypogæa*), hom-hom seed ; Denbick notch seed ; silk cocoons of *Saturnia Faidherbi* ; grains for red ink, coorie seeds (*Bonducella bonduc*).

P².—(Cases opposite.) *Gold Coast* : Calabar beans (deadly poison), Indiarubber, native broom. *Gambia* : "Snake's eyes" (*Abrus precatorius*), never-die seeds, handar-bark (medicinal), bamboo fibre, native water bottle, made of leaf. *Lagos* : Medicinal plant. *Sierra Leone* : Coranko, for yellow dye, palm fruit. Upper Biuué, or Tchadda river, a tributary of Niger : Gum Arabic. (See also case CC.)

Q.—MONTSERRAT, WEST INDIES : Lime fruit and products [Messrs. Evans, Sons and Co., Liverpool] : Limes ; juice squeezed, juice racked, juice filtered, lime fruit juice, various cordials made from same, bitters, sauce, fruit tablets.

R.—FIJI [Presented by the Fiji Commissioner at the Colonial Exhibition, 1886] : Coffee, preserved fruit, sugar, raw, crystallised, powdered (Mango Island), chillies, arrowroot, soja bean, croton oil seed, cayenne, turmeric, "paddy" or rice husks, for paper making, tea (broken pekoe), ivory nuts, dilo nuts, nutmeg starch, tapioca.

R². (opposite)—Tobacco, native cured and European cured ; cinchona bark ; yogona or kava ; bêche de mer, or edible sea slug ; candle-nuts ; candle-nuts, shelled ; wild tamarinds ; copra, or broken cocoa-nuts ; dilo nuts (*Catophyllum*) ; cocoa-nut fibre, coarse and fine ; cotton seeds ; cotton, raw ; tea (pekoe) ; coffee ; maize fleece of Angora goat.

- S.—BRITISH GUIANA. [Presented by the Colonial Commissioner, Colonial Exhibition, 1886.] Dried plantains or banana, cocoa, cotton, dried orange peel, ochre, white cocoa, cocoa-nut oil, isinglass, sand (from river Corentyne), cassava dried and sliced, cassava bread, cassava starch, cassareep, *Mannuca Americana*, copaiva balsam, dried dwarf banana, sugars, molasses, rice, coffee, castor-oil seed, macuma seed.
- S² (Opposite).—Greenheart seeds, ditto wood, trooly-nuts, swimming bladder of *Silurus Parkerii*, isinglass made from ditto.
- PERU. [Mr. George Pool, Arequipa.] Varieties of llama wool, yucca an edible root, cascarilla or Peruvian bark, ají (chillies), leaves of coca (*Erythroxylon coca*), the source of cocaine; seeds of quinquina (calisaya), seeds of cocoa (cacao), guano.
- T.—INDIAN GRAINS AND OIL-SEEDS. [Late Rev. J. A. Silva.] Rice; wheat; millets, viz., bajri, sawi, ragi, jawari, kungoni; peas, dhall grains, moong, black and green; oil seeds, e.g., pundi, castor-oil (awudla), sisamam, till, kusambla, linseed, ground nuts, marking nuts.
- U.—WOODS. West Indian. [Rev. H. O. Chipp.] Seagrape, Spanish elm, guango candlewood, grey sanders, white fork, calabash.
- Australian. [Commissioner for Victoria, Colonial Exhibition, 1886.] *Acacias* (*A. verticillata*, *A. calamifolia*, *A. implexa*), she oak (*Casuarina tuberosa*), *Eucalyptus fissilis*, *Hakea acicularis*, *H. pugioniformis*, *Melaleuca decassata*, *Oxylobium callistachys*, *Syncarpia laurifolia*; specimens from Northern Territory, &c.
- V.—VARIOUS MINERAL CASES, including (1) case of Irish marbles [Messrs. John Miller and Son, Galway]. (2) cases of Chilean iron ores and copper ores [Archbishop of Santiago, Chile]. (3) Chilean crystals (do.), polished stone.
- W.—VARIOUS VEGETABLE PRODUCTS. Mangy-mangy cocoa-nut (Fiji), yams (Fiji, Sierra Leone), Maize (U.S.A.), "Botany Bay harz" (*Xanthorrhoea arborea*, New South Wales), cob of Brazil nuts (*Bertholletia excelsa*, South America), Corozo nuts or "vegetable ivory" (South America), seeds of indiarubber tree (Bolivia), pod of *Strophanthus roimbé* (Nyassa region, East Africa), cone of tree fern (New Zealand) &c. [Various donors.]
- X.—VARIOUS VEGETABLE PRODUCTS. Collections of medicinal, &c., plants [Mr. E. Somers, M.R.C.S. &c.], tobacco, camphor, ears of cereals, &c.
- Y.—ETHNOGRAPHY—OLD WORLD. Turkey and Egypt: Juniper stem of pipe; fez (battle of Tel-el-Kebir), embroidered slippers, Mohammedan rosary. India and Ceylon: brass idol, silver statuettes of Buddha, sugarcane cutters, Parsi wood and incense. Persia: Specimens of MSS. China: Metal dice, drinking gourd, hand-painted silk, fans, MS. letters, printed book (treatise on music), specimens of paper, paper pocket handkerchiefs, playing cards. Japan: Fan-dagger, paper. Africa: "Manillas," formerly used as money; Zulu armlets, locust egg cases and grubs, Calabash (W. Coast), Ashanti brass figures. (See also case CC.) Above case on wall: Large Chinese fan, stick of tea wood, Malacca canes, carved bamboo stick (Japan), Zulu "love shield," elephant hunting spear (S. Africa), &c.
- Z.—ETHNOGRAPHY—NEW WORLD. Brazil: Strings of shells, model of "jangada," or boat. Mexico: Native models of Indians [Mr. E. de la Torre], objects made by Indians. Bolivia: Indian head-dress of feathers, teeth necklace, berry necklace, Indian comb, stone axe heads. [Mr. Oyola.] Nicaragua: Objects in baked clay made by Indians, small calabash. [Mr. Lacayo.] Peru: Woven and knitted figures. [Mr. G. Pool.] Central America: Carved calabash, Panama or cabbage tree hat. West Indies: Objects in bamboo and seaweed, sugarcane cutter. North America: Indian mocassins (U.S.A.), birch-bark boat (Nova Scotia), relics of Greeley Relief Expedition, 1883. [Mr. C. O'N. Conroy.] Australia: Emu eggs carved by natives, with indigenous animals and birds [Mr. J. McQuade]; native idol. New Zealand: Plants growing out of bodies of caterpillars (Nikitapu bush); pure sulphur and twigs covered with silica [Mr. Corry]; gold dust. Fiji: Coconut fibre fans, shell armlet. Samoa: Native comb, kava or yangona; native whistle. [Rev. J. Vaughan.] On wall above: Samoa bows and arrows; Canadian snow-shoes; Mexican hammock, made of henequen fibre (*Agave sisalana*) from Yucatan. [Mr. J. M. Ponce.]

- AA.—JAPAN. (1) Pictures on "Japanese crape." (2) Native prints illustrating native industries and mechanical arts, viz., rice-culture, five scenes; silk industry, three scenes; building and carpentry, eight scenes; loom, smithy, mechanical process, fifteen illustrations.
- BB.—ETHNOGRAPHICAL.—Various. Malay Peninsula: Malay sarong (garment), and Kris (dagger). [Mr. H. Collinge.] Australia: Grass mat. [Rev. J. Vaughan.] Brazil: Complete costume and trappings of vaqueiro, or cattle driver. [Mr. de Cerqueira Lima.] Argentine Republic: Trappings of Gaucho hunter.
- CC.—ETHNOGRAPHICAL.—Various. Lagos, West Africa: Grass mat. Upper Niger: Grass mat. Sierra Leone: Fibre. Gold Coast: Bark fibre. [All presented by Sir J. Marshall.] Afghanistan: Native embroidery. Turkey: Embroidered slippers.
- DD.—Collection of Italian butterflies. Caught, arranged, and presented by Rev. J. Rowan.
- EE.—Indian butterflies and moths. [Mr. T. M. Walsh].
- FF.—Models of Indian fruits, Madras. [Mr. H. Collinge].
- GG.—Models of Victorian fruits. [Colonial Commissioners, Paris Exhibition, 1877].

LIST OF GEOGRAPHICAL BOOKS (TALBOT BEQUEST) IN BOOKCASES
OF THE MUSEUM.

(These Works in for the use of Professors; there are also a number of books of Travel, &c., in the Students' Library.)

- Levasseur's Géographie Commerciale and Atlas.
- Bainier. Cours de Géographie Commerciale. 2 vols.
- André. Géographie des Welthandels. 3 vols.
- Yeats. Works on Commerce. 4 vols.
- Geography in All Ages. 1832.
- Class Books of Geography. Hughes, &c.
- Geographical Readers. Phillips, Blackwood, &c.
- Bouffard. Historie Générale du Monde. 3 vols.
- Maury. La Terre et l'Homme.
- Maury. Géographie.
- Bevan's Primers of Industrial Geography. 3 vols.
- Page's Physical Geography.
- Page's Geology.
- Malte-Brun. System of Geography.
- Phillips. Geography of the Ocean.
- Student's Modern Geography. (Smith.)
- V. de St. Martin. L' Année Géographique. 17 vols. (1863-77.)
- Pietro della Valle, Viaggi. 2 vols. (1843.)
- Tavernier. Voyages. (Paris, 1678.) 2 vols.
- Chardin. Voyages en Perse. 10 vols. (Paris, 1811.)
- P. Labat. Voyages. 8 vols. (Paris, 1742.)
- Ptolomæi Geographia. 3 vols. (Lipsiæ.)
- Strabo. Rerum Geograph. 3 vols. (Lipsiæ.)
- Strabo. Translation by Falcouer and Hamilton. 3 vols. (Bohn.)
- Humboldt. Travels. 3 vols. (Bohn.)
- Humboldt. Géographie. 5 vols. (Paris.)
- Bodham-Whetham. Roraima and British Guiana.
- Bodham-Whetham. Across Central America.
- Townshend. Wild Life in Florida.
- De Verteuil. Trinidad.
- Breen. St. Lucia.
- Climate, Geology, and Fauna of Brazil.
- Mathews. Up the Amazon and Maderia Rivers.
- Bates. The Naturalist on the Amazons.
- Domenech. Deserts of North America. 2 vols.
- Whymper. Alaska.
- Northern Coasts of America and Hudson's Bay.

Roux de Rochelle. *Etats Unis*.
 De Rienzi. *Océanie*. 2 vols.
 Captain Cook. *Life and Voyages*.
 Brassey. *Voyage in the Sunbeam*.
 Micmie. *Siberian Overland Route*.
 Barrow. *Arctic Voyages*.
 McClintock. *Fate of Sir John Franklin*.
 Hewitt. *Geography of the British Colonies*.
 Gill. *Geography of the British Colonies*.
 Her Majesty's Colonies.
 Bonwick. *British Colonies and Resources*.
 Colonial and Indian Exhibition, 1886: Catalogues and Handbooks and Official Publications,* mostly presented by the Commissioners of the various Colonies, and referring to:—

CEYLON: Handbook and Catalogue of Court.

CYPRUS: Catalogue of Court.

MALTA: Malta and its Industries. By Dr. Zammit.

WEST AFRICA: Handbook to the Court.

CAPE OF GOOD HOPE: Official Handbook.

NATAL: Official Handbook.

WEST INDIES: The Western Indian Court.

Trinidad as a Field for Emigration.

BRITISH GUIANA: Special Catalogue.

FIJI: Handbook to Exhibits.

QUEENSLAND: Catalogue of Exhibits.

Queensland, its Resources and Institutions: Essays.

VICTORIA: Illustrated Handbook.

Victorian Year-Book (several years).

Catalogue of Exhibits.

Descriptive Catalogue of Minerals.

The Land Act of 1869.

Royal Commission on Vegetable Products.

Homes and Homesteads in the Land of Plenty.

Extra-Tropical Plants. By Mueller.

Indigenous Vegetation of Australia.

NEW ZEALAND:

Official Handbook (two editions).

Handbook of New Zealand, by Hector.

Catalogue of Exhibits.

Catalogue of Geological Exhibits.

Geological Survey Reports, 6 vols.

Meteorological Report.

New Zealand and the South Sea Islands. By Vogel.

New Zealand: A Field for Emigration. By Pennefeather.

CANADA:

Government Guide Book to Canada.

Canada, its History and Production. By Hon. J. Carling.

Catalogue of Economic Minerals.

Canadian Forests and Trees. By Small.

Across Canada. By Fream.

Guide du Colon Français au Canada.

Canada at the Colonial and International Exhibition.

New Brunswick, its Resources and Progress.

Nova Scotia: Information for Settlers; do. the Crops.

Manitoba and the North-West.

The North-West and British Columbia. By Lord Landsdowne.

The Great North-West Prairie Lands. By Spence.

Sport in the North-West. By Hubbard.

Ontario as a Home for the British Farmer. Pictorial Ontario.

* Many of these are merely pamphlets.

- Official Educational Reports : Quebec (Rapport du Surintendant de l'Instruction Publique ; Questions de Concours ; Exposition Scolaire). New Brunswick (Annual Report). Nova Scotia (Annual Report). Manitoba (Mémoire par la Section Catholique du Bureau d'Éducation ; Report of the Protestant Schools).
- Emigrants' Information Office : Publications ; Circulars for various Colonies.
- Terry. Reminiscences of New South Wales and Victoria.
- Reid. Essay on New South Wales.
- Harcus. South Australia.
- Trollope. South and West Australia.
- Raffle. History of Java, 2 vols.
- Stone. Five Months in New Guinea.
- Wallace. Malay Archipelago, 2 vols.
- Tennent. Natural History of Ceylon.
- Vambéry. Central Asia.
- Burnaby. Ride to Khiva.
- Burnaby. On Horseback through Asia Minor.
- Capper. The Three Presidencies of India.
- Blakiston. The Yang-Tsze.
- Mouhot. Travels in Indo-China, 2 vols.
- Bickmore. Travels in the East-Indian Archipelago.
- Ferrier. Caravan Journeys.
- Des Vorges. L'Arabie.
- Gentil. Mémoires sur l'Indoustan.
- Steinmetz. Japan and its People.
- Cooke. China in 1857-8.
- Huc. Voyage dans la Tartarie et Tibet, 2 vols.
- Huc. L'Empire Chinois, 2 vols.
- Huc. Le Christianisme en Chine, 4 vols.
- Longman's "Travellers' Library," embracing Huc's Travels, Buxton's Mexico, Head's Pampas, Edward's Amazon, Heber's Indian Journals (2 vols.), Malcolm's Sketches of Persia, Hay's Western Barbary, St. John's Libyan Desert, Ripa's Court of Pekin.
- Hamilton. Wanderings in North Africa.
- Lady Herbert. Algeria.
- Lady Herbert. Cradle Lands.
- Charmes. Five Months in Egypt.
- Blandford's Geology and Zoology of Abyssinia.
- Beke. British Captives in Abyssinia.
- Hozier. Expedition to Abyssinia.
- Parkin's Life in Abyssinia.
- Tardieu, &c. Séouégambie, Nubie, &c.
- Elton. Lakes and Mountains of Africa.
- Cameron. Across Africa.
- Kerr. The Far Interior, 2 vols.
- Stanley. Through the Dark Continent, 2 vols.
- Cumming. Lion Hunter in South Africa.
- Livingstone. South Africa.
- Baker. Nile Tributaries.
- Baker. Ismaïlia. 2 vols.
- Baker. Albert Nyanza.
- Speke. Discovery of Sources of Nile.
- Du Chaillu. Ashango Land.
- Du Chaillu. Adventures in Equatorial Africa.
- Morier's Journey through Persia.
- Morier's Second Journey through Persia.
- Humbert. Le Japon Illustré.
- Garnier. L'Indo-Chine.
- Moray. L'Amérique du Sud, 2 vols.
- Harris. Wild Sports of South Africa.
- Williamson's Oriental Field Sports, 2 vols.
- Imperial Gazetteer, 2 vols.
- Index Geographicus. Keith Johnston.
- Thornton. Gazetteer of India.

Catlins. North American Indian. 2 vols.

Cooper. Pioneers of Commerce.

Atlases: Keith Johnston's Royal (1878), Cox's General, Blackie's Comprehensive, Johnston's Physical, Maury's Atlas of the Sea, Bevan's Relief, Bevan's Statistical, Putzger's Gymnasial, Spruner's Atlas Antiquus, Andriveau's Atlas Universel, Dien's Atlas Céleste.

Pictures: Vogel's New Zealand Album of Photographs: Egypt, Syria, Granada.

LIST OF CARDS OF THE "MUSÉE SCOLAIRE,"

Published in Paris and Brussels, and arranged in the Corridors.

*The cards marked * have actual objects, and are in glass cases. The rest have illustrations only. The explanations are in French.*

Nos. 1-18. Natural History.

*19, 20. Minerals.

21-26. Elements of Agriculture.

*27. Food Plants: Pulse.

*28. Tea, Coffee, and Cocoa.

*29, 30. Cereals, Flour, and Bread.

*31. Spices.

*32. Sugar.

*33-34. Oil Plants.

*35, 36. Dye Plants.

*37. Flax and Linen.

*38. Hemp.

*39. Cotton.

*40, 41. Gums and Resins.

*42-49. Industrial Woods.

50, 51. Poisonous Plants.

52, 53. Edible and Poisonous Mushrooms.

82-86. Injurious Insects.

87. The Bee.

*88. The Silkworm.

89. A Drop of Water with Infusoria.

91. Crustaceans.

92. Fish.

93. Reptiles.

94. The Fowl: Development of the Chick.

95-98. Birds.

99-106. Mammals.

*54. Paper Making.

*56-58. Coal and its Products.

*60-62. Iron and its Manufacture

*63. Steel.

*64, 65. Zinc.

*67. Lead.

*68. Bricks and Pottery.

*70, 71. Porcelain.

72. Glass.

*73-77. Industrial Minerals.

*78. Tanning.

*80. Weaving.

*81, 82. Textile Hairs and Wools.

HUNDREDTH MEETING

Of the Society, held in the Library, on Wednesday, June 26th, at 7-30 p.m.; Mr. H. YULE, Oldham, in the chair.

The minutes of meetings held May 29th (97), June 5th (98), and 22nd (99) having been read and approved, the election of the following members was announced:—

ORDINARY: Messrs. Ralph Bagley, John Dyson, A. Haworth, J. Hoyle Todd, and William Wilkinson.

The following presentations were announced :—

Mr. C. Roeder : Further Remarks on the Oxford Street Section.

Mr. J. E. M. Vincent : The Australian Irrigation Colonies (illustrated).

Councillor McDougall : Inquiries into the Causes of Poverty. Further ditto ditto. Drink and Poverty.

The *Alliance News* : Two copies of Drink Map of Manchester.

M. Tondini de Quarenghi : Progress of the Questions of Unification of Time and Prime Meridian.

Councillor W. Sherratt : 7 vols. Annual Reports on the Boston (U.S.A.) Water Supply, 5 vols. Annual Reports of the Cochituate Water Board. 3 vols. Report of City (Boston) Engineer. Report on the Additional Water Supply. Report on the Impurity of Water. Report on the Prevention of Floods. Description of Boston Main Drainage Works. Ditto (brief). Description of Boston Waterworks. Two Reports on Boston Parks. Portraits, maps, views, sections, &c.

Mr. Bryden, Harrisburg, by Mr. Bramwell : Eleven Reports of the Commonwealth of Pennsylvania, fully illustrated with tables, views, plans of coalmines, &c.

The SECRETARY made announcements in reference to the excursions of the Society in June, July, and August.

The death of Mr. W. A. Beith and the resolution of the Council thereon having been announced, Mr. G. Beith's reply, as follows, was read :—

“Glasgow, 25th June, 1889.

“My Dear Sir,—Will you kindly convey to the Council of the Manchester Geographical Society, and to the mover and seconder of the resolution you sent me, my heartfelt thanks and gratitude for this formal expression of their kind sympathy with me and my family. It is most comforting to us all that so important a body of gentlemen should pass with much sympathy this very kind resolution unanimously. To the eye of sight the case is as sad as it well can be.”

The following papers were then read : “In Mashona Land,” by Mr. F. C. Selous, read by Mr. GRINDLEY. “The Snowline of the Tatra Mountains,” (see pp. 198-201) by Karl Grissinger, translated and read by Mr. F. ZIMMERN.

HUNDRED AND FIRST MEETING

Of the Society, held on Saturday, June 29th, 1889, at 3 o'clock p.m., for the purpose of visiting the General Post Office, Brown Street.

Mr. R. W. Johnston and his assistants received about sixty members, and took them through the building, explaining the working of the letter and newspaper departments, and the electrical and pneumatic departments. The members present on this occasion were delighted with their visit, and were very much surprised to see the perfection to which the work of the Post Office has been brought.

Very hearty votes of thanks were given to the Postmaster and his assistants for their kindness and the great trouble they had taken in showing the working of this great Government department.

Commercial Geography in Preston.—In a previous number of the Journal we drew attention to the fact that a course of lectures on this subject was being delivered in Preston by Mr. Cardwell, of St. Bede's College, Alexandra Park. From the accounts appearing in the local papers, we find that the countries dealt with after Christmas were Great Britain, France, Germany, and the United States. From

these same summaries we also get some idea of the method of teaching adopted in the lectures, which appear to have been conducted in a scientific, philosophical, and practical manner. Practical, in that actual specimens of the various products of commerce in their threefold aspect—as raw materials, as materials in the progress of manufacture and as finished goods were shown whenever their names or the localities where they are produced were mentioned. Scientific, in that a student, after working through one country by the method here adopted, would, by a reference to the physical geography and geology of any other country, at once be able to infer, with tolerable correctness, the character of the economical geography and present economic state of the new country referred to. Philosophically, in that particular attention was devoted to bringing out just those points in connection with the history of commerce of each country for which the special circumstances of its geography best adapted it. Thus, in connection with Great Britain, there was traced out the rise and development of our commercial supremacy, whilst France, Germany and the United States were dealt with as our great industrial and commercial rivals. France was also dealt with as an agricultural country, being contrasted, from an economical point of view, with Great Britain, a manufacturing and mining one, whilst Germany illustrated the advantages and disadvantages of such commercial combinations as the old Hanse League and modern Zollverein, with special reference to the federation of the British empire; the United States being specially studied as our provider, best customer, and greatest rival. We have drawn attention to these lectures at some length for the benefit of members, since Mr. Cardwell is about to give a similar course at the Manchester Technical School during the next winter.

The Cañon of the Tarn in South Central France.—We read in the new edition of Murray's "Handbook of France" (1888) the following interesting description of a region of cañons in Central France, access to which has only recently been made practicable by the opening of a new line of railway. The region is that of Les Causses, a tableland rising 3,000 feet and upwards above the sea-level in the Departments of La Lozère and Aveyron. The upper surface of this high plateau presents nothing but nude dry rocks entirely destitute of water, standing or running, but its striking and peculiar feature is the number of deep ravines which traverse it, with vertical sides 400 to 600 metres deep. The chief of these gorges is that of the Tarn, which runs through it at the bottom of a cañon resembling those of the Colorado, but on a smaller scale. The Tarnon, the Jonte, the Dourbie, and the Fraissinet also pass through cañons, which fissure it in various directions. The cañon of the Tarn, however, has a length of 31 miles, during the whole of which not a single streamlet or torrent enters, but it is fed by twenty-five to thirty voluminous fountains, gushing out at the foot of the high cliffs which bound it, those on the right or north being the escarpment of the Causse Méjean, on the left, and the Causse Sauveterre on the right. Where the Tarn enters the gorge it is an insignificant stream, nearly dried up during four or five months of the year. At its outlet it is a large, copious, and never-failing river. The cause of this phenomenon is thus explained. Every drop of rain which falls upon the surface of the Causses above sinks at once into the ground, and filters through the pervious strata of jurassic limestone until arrested by the subjacent beds of the lias at the level of the bed of the Tarn. The grandeur and picturesqueness of these deep and narrow gorges is augmented and varied by the singular character of the dolomite rocks which crown the precipitous walls.—*From Proceedings Royal Geographical Society.*

The Population of Morocco.—From a new investigation as to the population of Morocco, published in the *Réveil du Maroc*, we obtain the following results. First, as to races: Berbers and Tuaregs, 3,000,000; Shella Berbers, 2,200,000; Arabs (1), pure Nomadic Bedouins, 700,000; (2) Mixed, 3,000,000; Jews, 150,000; Negroes, 200,000; total, 9,250,000. As to regions, the population is distributed as follows:—

The region of the old kingdom of Fez	3,200,000
Ditto of Morocco	3,900,000
Ditto of Tahlet and the Segelmesa country	850,000
Ditto of Sus, Adrar, and the Northern Draa.....	1,450,000
Total	9,400,000

From Proceedings Royal Geographical Society.

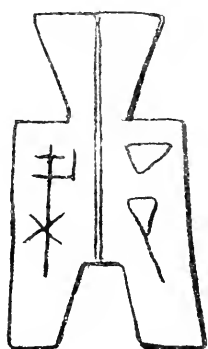
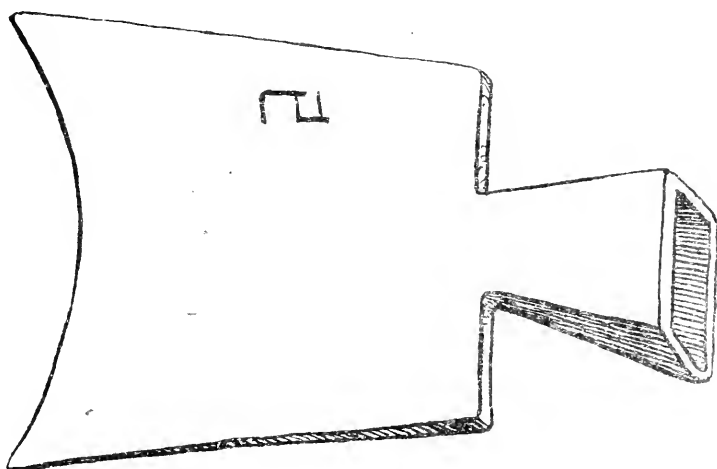
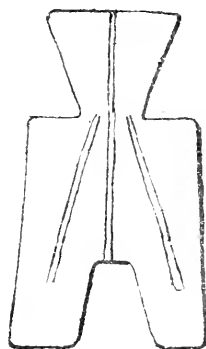
*Fig. 1.*

Fig. 2.



Fig. 3.



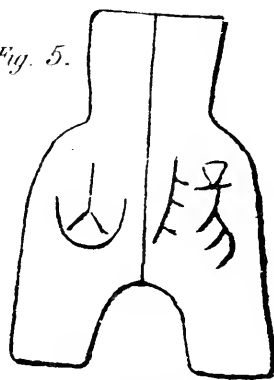
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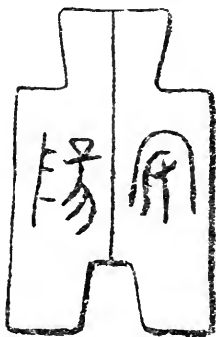


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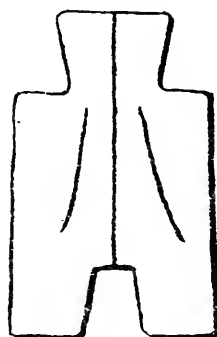


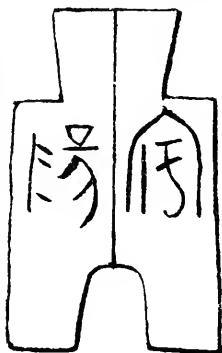
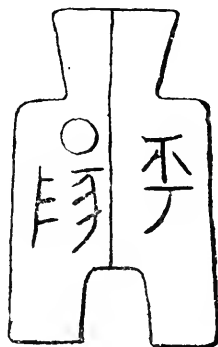
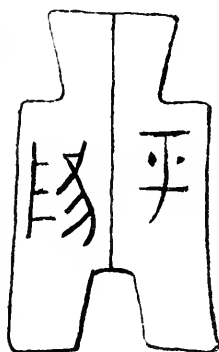
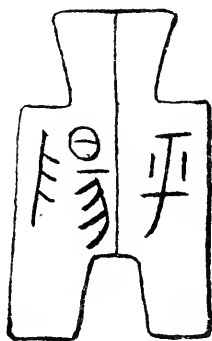
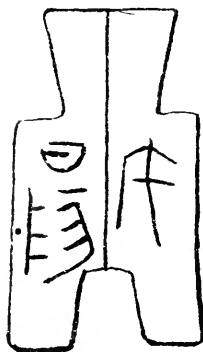
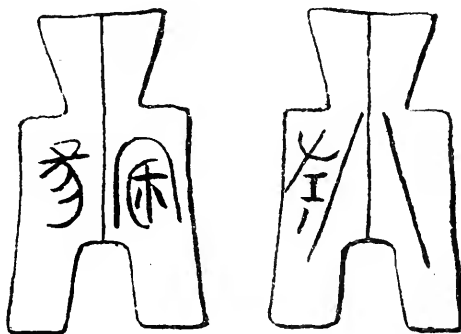
Fig. 7.*Fig. 8.**Fig. 9.**Fig. 10.**Fig. 11.**Fig. 12.**Fig. 13.*

Fig. 14.

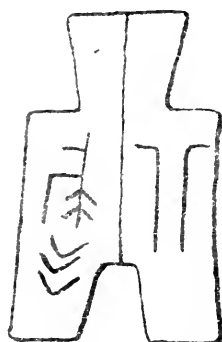
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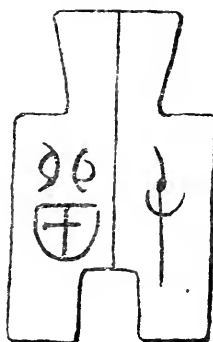
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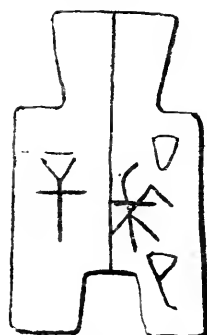
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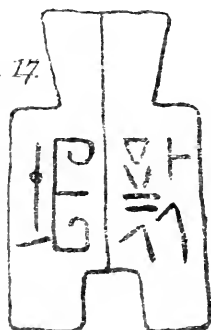
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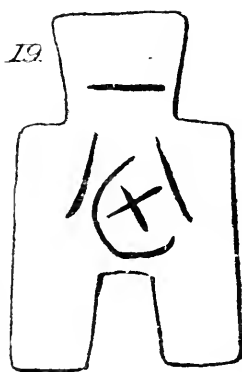
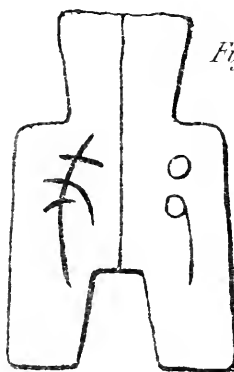


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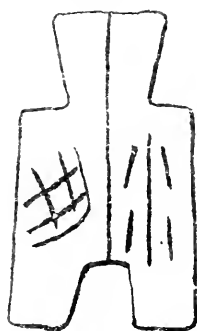
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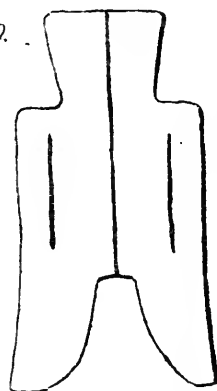
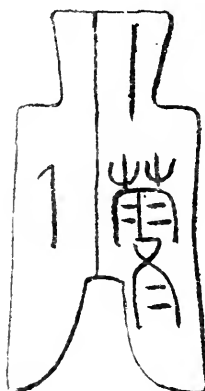
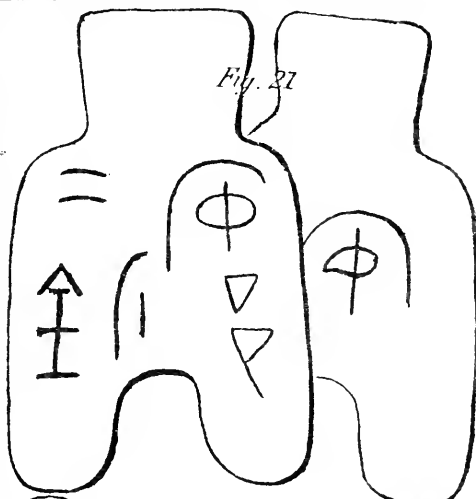
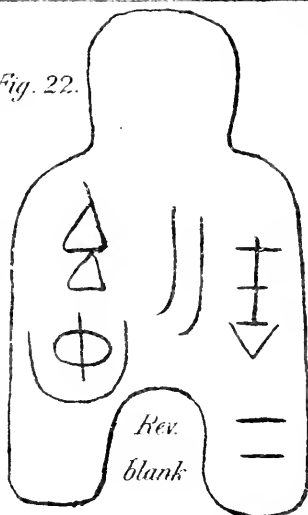
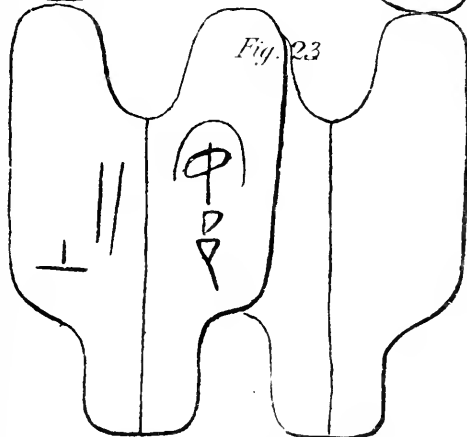
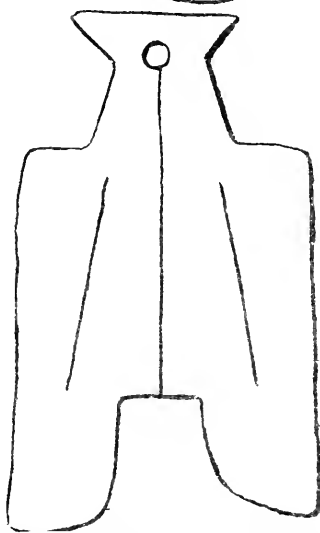
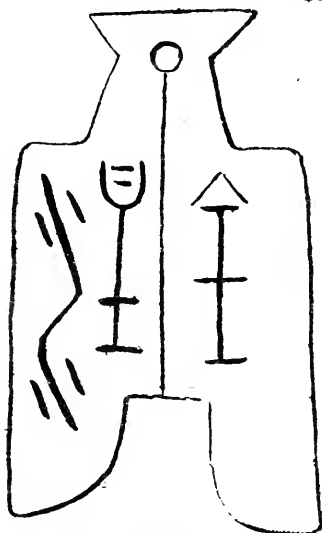


Fig. 21*Fig. 22.**Fig. 23**Fig. 24**Fig. 25*

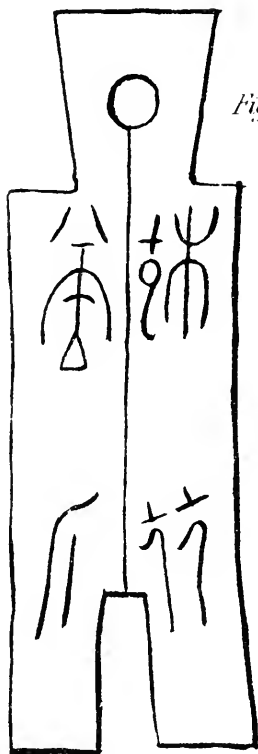


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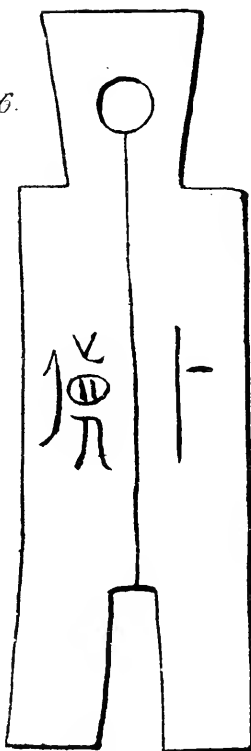


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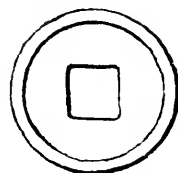


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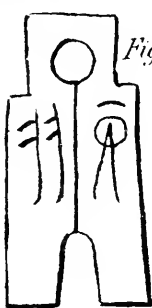
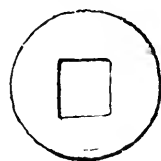


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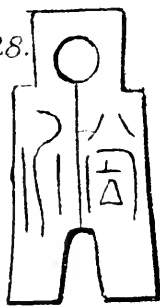


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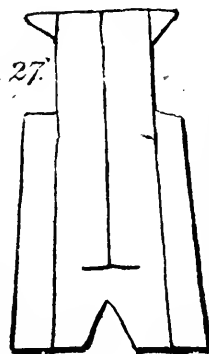
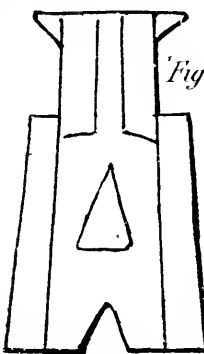
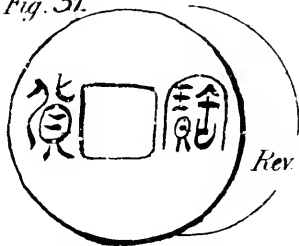
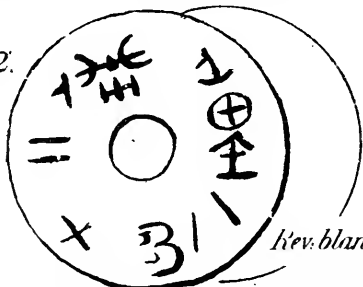


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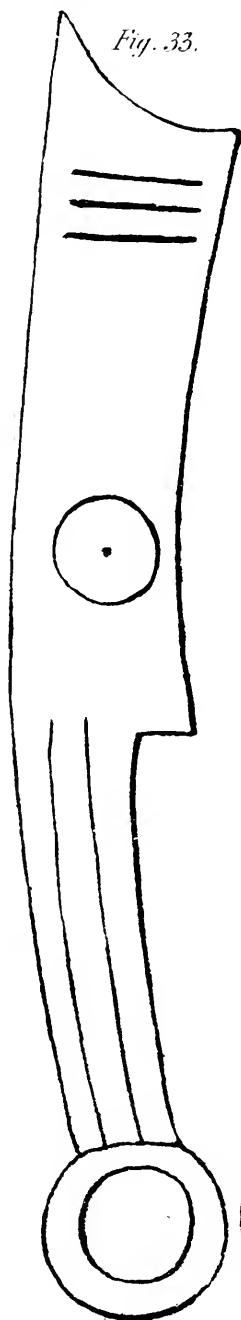
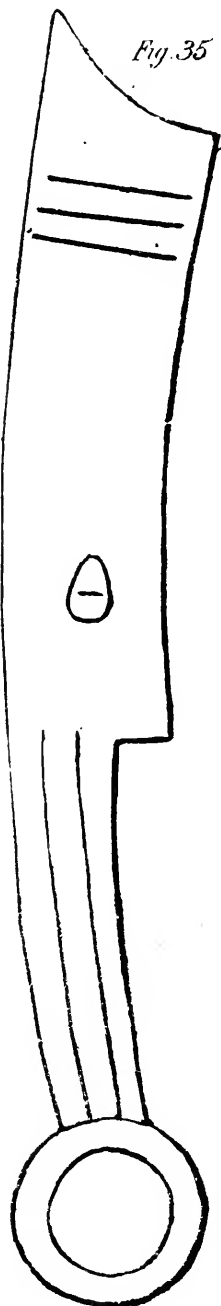


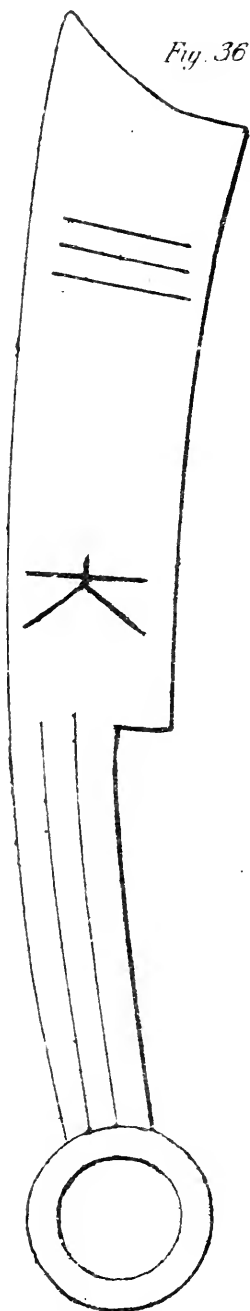
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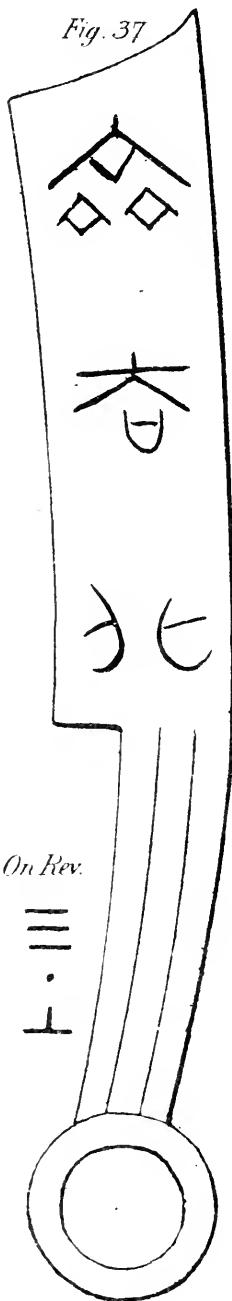


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Fig. 33.*Fig. 34.**Fig. 35.**Rev. similar to 34.**Rev. similar to 34.*



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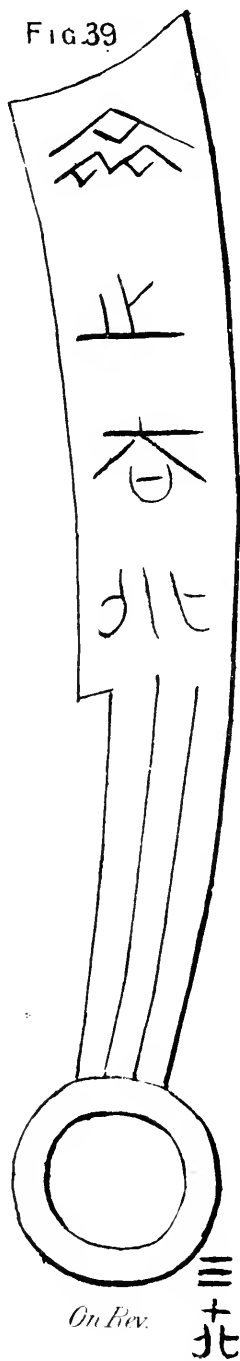


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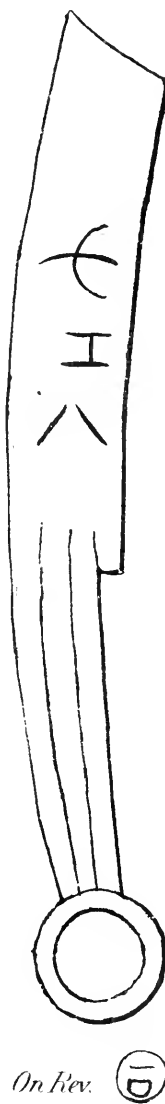
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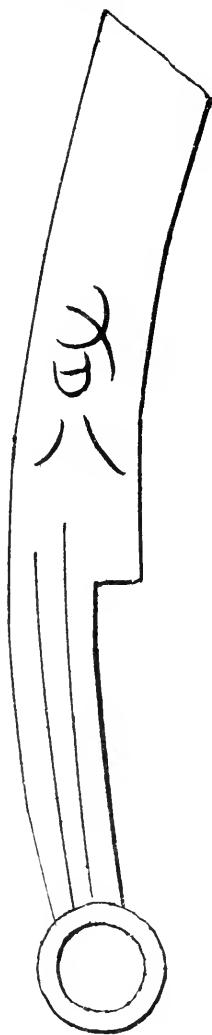
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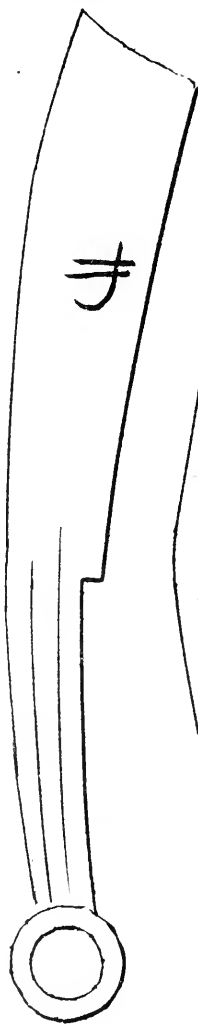
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Fig. 42



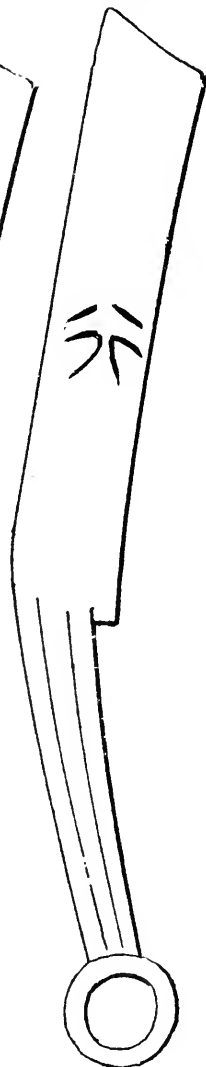
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Fig. 43



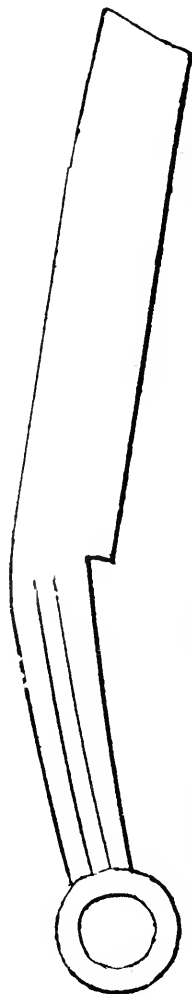
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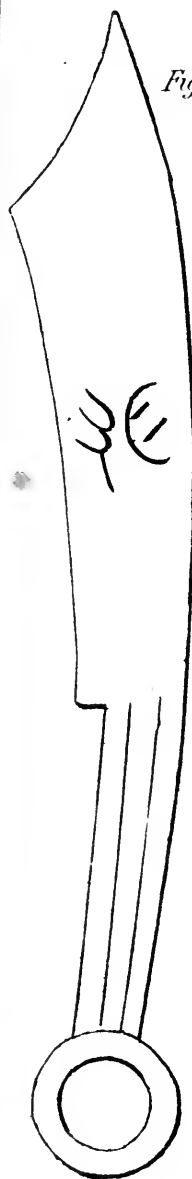


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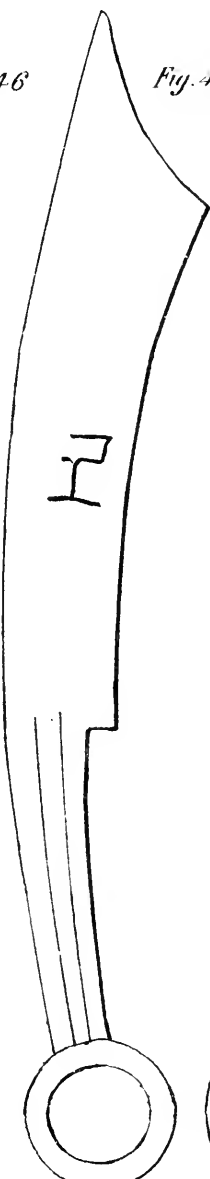


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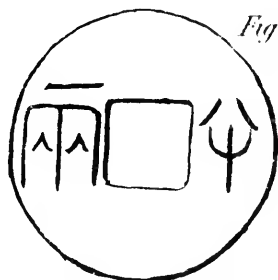


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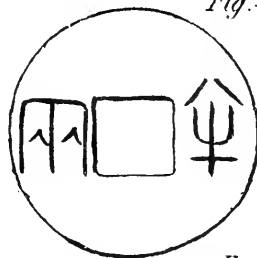


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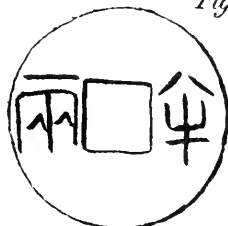


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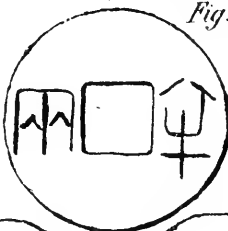


Fig. 51



Fig. 52

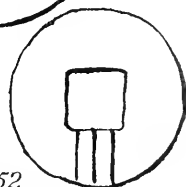


Fig. 53



Fig. 54



Fig. 55



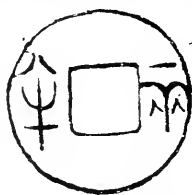


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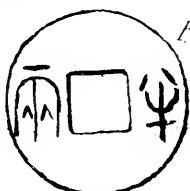


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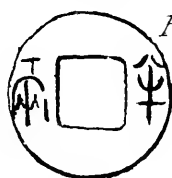


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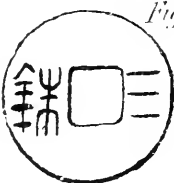


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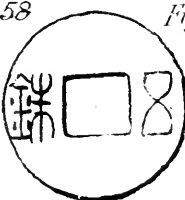


Fig. 59



Fig. 60



Fig. 61

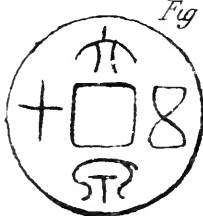


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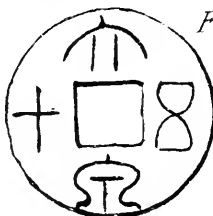


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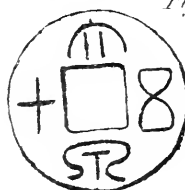


Fig. 64



Fig. 65



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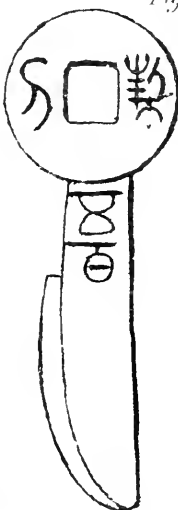


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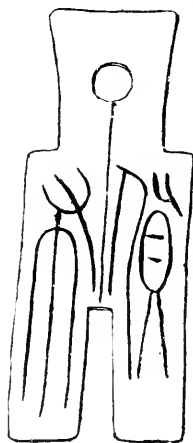


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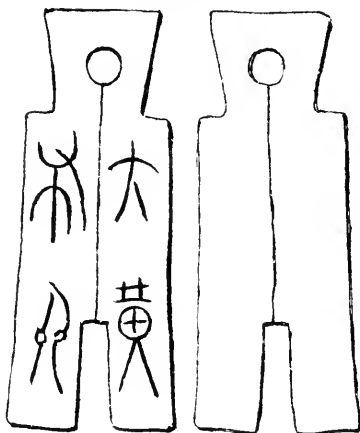


Fig. 69



Fig. 72

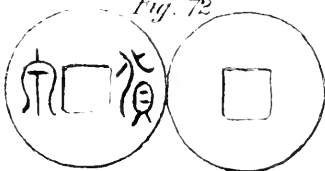


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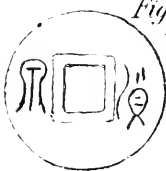


Fig. 74



Fig. 75

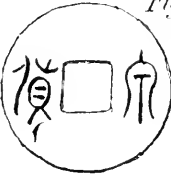


Fig. 76



Fig. 77

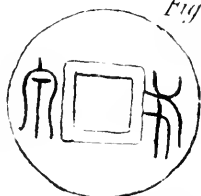


Fig. 78

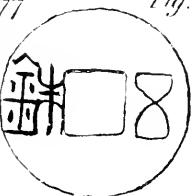


Fig. 79

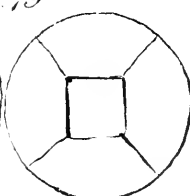
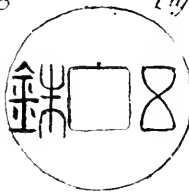


Fig. 80

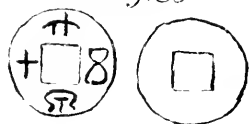


Fig. 82



Fig. 81

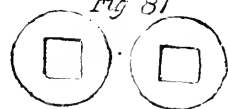


Fig. 83

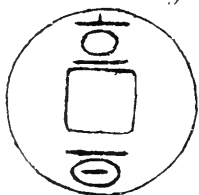


Fig. 84



Fig. 85

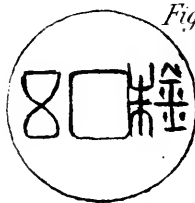


Fig. 86

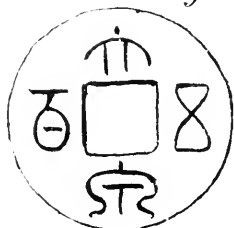


Fig. 87

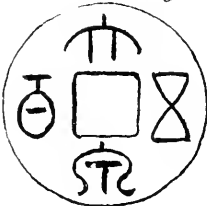


Fig. 88

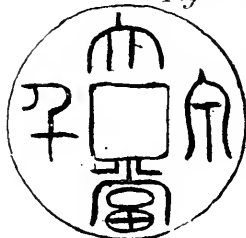


Fig. 89

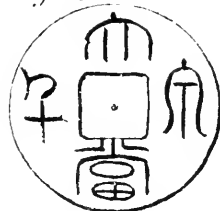


Fig. 90



Fig. 91

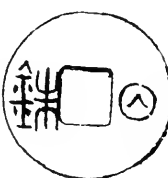


Fig. 92

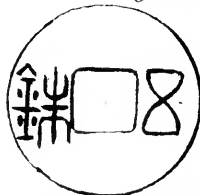


Fig. 94



Fig. 95

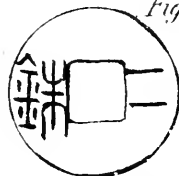


Fig. 96



Fig. 93



Fig. 98



Fig. 97

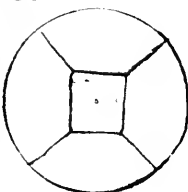
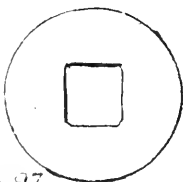


Fig. 99



Fig. 100

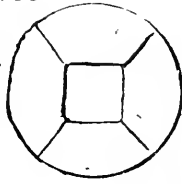


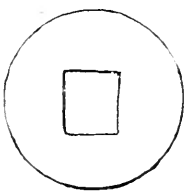
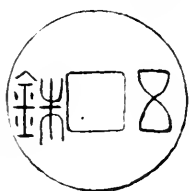
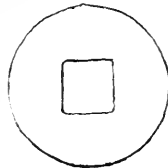
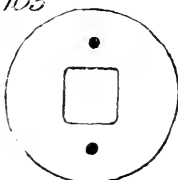
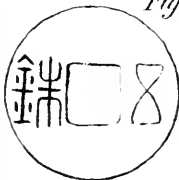
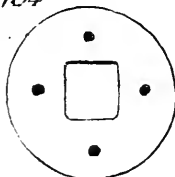
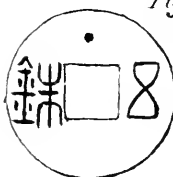
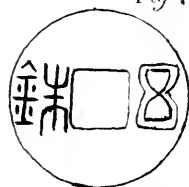
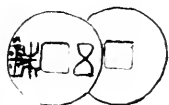
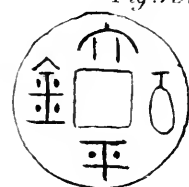
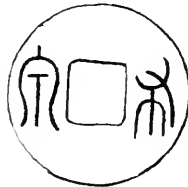
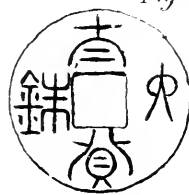
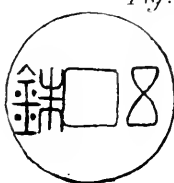
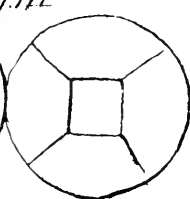
Fig. 101*Fig. 102**Fig. 103**Fig. 104**Fig. 105**Fig. 106**Fig. 107**Fig. 108**Fig. 109**Fig. 110**Fig. 111**Fig. 112**Fig. 113**Fig. 114**Fig. 115**Fig. 116**Fig. 117*



Fig. 118

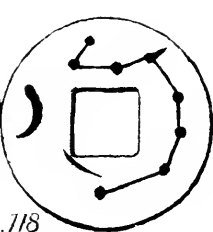


Fig. 119

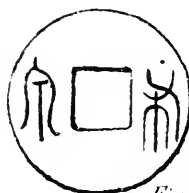
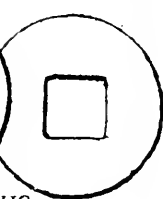


Fig. 120

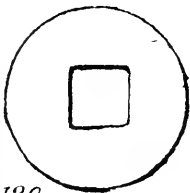


Fig. 121

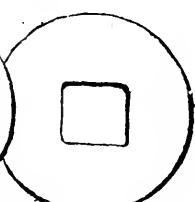


Fig. 122

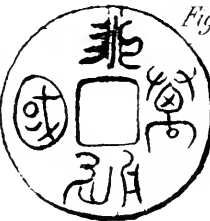


Fig. 123



Fig. 124

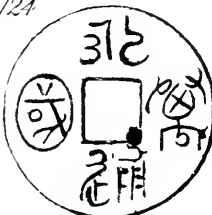


Fig. 125



Fig. 126

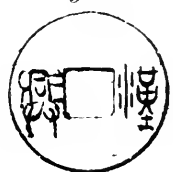


Fig. 127



Fig. 128

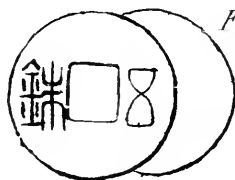
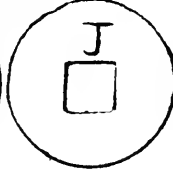
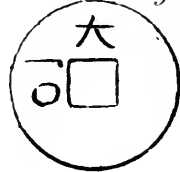


Fig. 129



Fig. 130

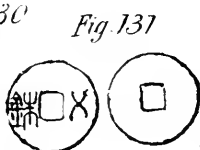


Fig. 131



THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

THE COINS OF CHINA.

By C. T. GARDNER, Esq., H.B.M.'s Consul at Tientsin.

[Read to the Members by Mr. Egbert Steinthal, January 25th, 1889.]

(See Illustrations drawn by Mr. Gardner.)

PREFATORY.

AN ordinarily-educated Englishman, who has acquainted himself with the literature within his reach with regard to China, will probably have remarked that the old and new school of sinologues regard that country from an entirely different standpoint.

The old school looked on China as one of the most ancient nations of the world, and believed that she had formed herself into an empire four thousand years ago, with an homogeneous population, and with a peculiar civilisation, in which there has been no change for forty centuries, except perhaps a slight retrogression, and that, during these forty centuries, China has been isolated from and uninfluenced by the rest of the globe.

The new school denies the extreme antiquity of China. Thus, Mr. Mayers considered that the history of China only begins in the seventh century before Christ. Mr. Oxenham considers the history of China does not begin till considerably later than that. Some even go so far as to state that though we possess isolated historical facts as early as B.C. 255, reliable continuous Chinese history does not commence till the seventh century of our era.

Modern scholars are almost unanimous in rejecting, as pure myths, native stories of the Five Rulers of Yao, Shun, and Yü, the Hsia, and the Shang dynasties, and the early records of the Chows—*i.e.*, of all stories professing to treat of times previous to B.C. 700—after which date they assign more or less long periods as the age of legends. Most modern students hold the view that China's civilisation has been progressive, and that it did not assume its modern form till the middle of the Tang dynasty—that is, about the eighth or ninth century A.D.—about the same time that modern Europe began to assume its present state.

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Modern scholars generally hold that the population of China is by no means homogeneous, but that the country has been populated possibly in the same manner, at the same dates, and from the same regions, as Europe by successive hordes or swarms of tribes one after the other, who have, in some instances, driven their predecessors and the aborigines into the mountains (where they still exist, and maintain a *quasi* independence, under various names*), and in other instances merged with them by marriage and in other modes†.

Institutions which seemed to the former generation of scholars to be peculiar to China, such as ancestral worship, birth, marriage, and death customs, communal tenure of land, &c., are now considered to be developments or survivals of practices which at various stages in the evolution of civilisation have been common to the human race.

A more extended survey of Chinese history, literature, and monuments has caused modern scholars to believe that the old belief in the stagnation and immobility of the Chinese was not well founded, and that the progress of China, though slow, has been more rapid than used to be supposed; that whenever we confine our attention to one special branch of Chinese civilisation, we find there has been in that branch a gradual and constant development—and this holds good, whether we take the realm of law, government, religion and philosophy, or the domain of the arts, useful or ornamental, of agriculture, and of mechanical contrivance; and that, further, the fact that many of these branches show signs of foreign influences must modify the old notion of China's isolation.‡

* The following are a few of the aborigines still existing and maintaining a *quasi* independence in China or China's confines: The Lo Lo and Si Fan, in Szechuan; the Khakys, between Burma and China; the Laos, in North-west Tonquin; the Yaos, Kwangtung; the Li, Hainan; the Fan, Formosa; Miao-tze, Yunnan, Kweichow, &c. The following are probably aboriginal tribes, that have to some extent adopted Chinese dress and customs, but which have not retained their independence: The Pen-tis and Tan-kas, in Kwangtung; the Hakkas, Kwangtung and Fokien; the Douin, Fokien and Chekiang, &c.

† By the memorials to the Throne written by Han Wen Kung (about A.D. 820) we find the inhabitants of Kwangtung were then regarded by Chinese officers as foreigners. In 1874 the seventy or so district magistrates of Kwangtung were called upon for reports with regard to the aborigines in their several districts. By these reports it appeared that very many of the inhabitants of Kwangtung are of non-Chinese origin, whose progenitors only adopted Chinese dress and customs within the last two centuries. The same merging of the aborigines with the Chinese has probably been silently taking place throughout China for the last eighteen centuries.

‡ In law: The code of each successive dynasty shows a slight advance on the code of the dynasty preceding, and the codes have themselves been modified and supplemented periodically by new laws. In government: The form of government so accurately described in detail by the Jesuit writers of two centuries ago has undergone many and important changes. In religion: Buddhism is undoubtedly, and Taoism is probably, of Indian origin. There were a few Chinese Buddhists in the third century B.C. But, as has been shown by the Revs. Drs. Chalmers and Eitel, Buddhism only began to be a popular religion in China after the ninth century of our era. In philosophy: The system of philosophy sanctioned by the Chinese government, and professionally adopted by all educated Chinese, is undoubtedly, as stated by the Rev. Dr. Legge, largely due to Chu Hi and the commentators of the twelfth century of our era. The arts: The golden age of bronze work in China is from 1200 to 1400 A.D. In crockery ware, from 1400 to 1600 A.D., the art of cloisonné was introduced by Jesuit missionaries. The arts of paper manufacture, cotton and linen textiles, printing, &c., are comparatively modern. In agriculture: The cultivation in China of grapes, tobacco, cotton, potatoes, the sesamum, is but recent. For all these useful plants China is indebted to foreign countries. Mechanical contrivances: A good idea of how gradual the advance of China has been in mechanical knowledge is found in the history of the building of the sea wall of Chekiang (Ché-chiang shêng chü).

At the present moment we are in possession of large tracts of knowledge that have been acquired for us by students who have rested from their labours. We have still happily among us many earnest workers, in the vast field of Chinese lore,* who are now busily engaged in facilitating the study of the Chinese language, and in collecting material which will, I trust, soon enable us to form a correct opinion as to the origin of the Chinese, as to the weight to be attached to their claims to antiquity, as to the position to be assigned to, and the true lessons to be learnt from, their myths, legends, laws and customs, and as to whether the growing impression that China, instead of being an exception, is an exemplification of the laws of evolution that have governed the development of other nations is or is not justified.

There is one branch of Chinese knowledge to which I have, the last twenty years or so, devoted some attention, and that is Chinese coins. The question arises, Do these coins throw any light on the supposed antiquity, homogeny, stagnation and isolation of the Chinese? To enable the reader to form some opinion on this point, I have endeavoured, in the following paper, to show the evolution of money in China, by drawings and explanations of one hundred and thirty-one varieties of coins, considered by the Chinese as the most ancient coins issued. With regard to the antiquity of China, the evidence is negative. I can only say that the most ancient Chinese coins I have heard of cannot be attributed to an earlier period than 400 B.C. The general use of coins as money is very much later than that date. The evolution of the idea of using coins as circulating media of exchange was so exceedingly gradual that it is impossible to state definitely the exact time when money began to be used in China. The first evidence we have of *bullion* being a principal means of exchange is in B.C. 255, when pieces of bronze, with the weight inscribed upon them, were issued. The first evidence we have of coins being intended for universal currency are doubtful ones, in A.D. 168 and in A.D. 502. With regard to the homogeny of China, the indications given by coins seem to show that the old ideas on that subject must be modified. The coins would seem to point to China being occupied by a variety of tribes (not all of the SAME race), who, though they may have acknowledged the supremacy of one or another among them at various times, were not welded into a nation till the time of the Tangs, A.D. 618-905. After this, China was again split up into five states, till the Sungs reunited the empire in A.D. 960 to

* Of the scholars we have lost, I would mention with reverence the names of Mayers, Wylie, and Williams. The following are the names of a few of the present workers: The Rev. Drs. Legge, Chalmers, Eitel, and Edkins, in philosophy, religion, literature, and philology; Messrs. Alabaster, Jamieson, and Parker, in law; Messrs. Giles, Hirth, Phillips, and Playfair, in geography, literature, intercourse with foreign nations, and ethnology; Monsieur Terrien de la Comperie, in ancient writing; Sir Thomas Wade and Mr. Hillier, in the modern language; Mr. Walters, in Confucianism; Mr. Oxenham, in history.

A.D. 1126. Then China was again divided between north and south, till the conquests of Ghengis and Kublai Khan, in the 13th century, since which date China has practically been a single empire, which, with occasional losses, has gradually extended, or at all events consolidated, its powers to the present days.

With regard to the alleged stagnation of China, the evidence of the coins tells a very different tale. In no case does the modern Chinese writing occur on a coin that can be attributed to a date previous to the eighth century of our era. The earliest appearance of the cursive mode of writing is on a Sung coin of the date A.D. 990—995.

As to whether the coins of China show traces of a foreign element, I would draw a distinction between coins considered as money and coins used as talismans and charms.

With regard to the former I am not sufficiently acquainted with the mode of evolution of money in other countries to state positively that China has developed money in an unique and peculiar manner: positive evidence of the influence of foreign nations is in this respect absent to a very remarkable degree. This is all the more noteworthy, as we know that China, at a very early date, was acquainted with the coins of certain other nations. Sze Ma Chien, in his travels, about B.C. 100, collected several gold and silver coins bearing the effigies of sovereigns and states ruled over by the descendants and successors of descendants of Alexander's generals. These silver coins were at the time imitated in bronze by Chinese moulders, and the imitations are now occasionally produced and worn as charms. Some of these imitations I have seen.*

On the reverses of both there is a man on horseback. Yet China has never used gold as a medium of exchange at all, and silver has always been used in bulk and not in coins. Nor has China ever placed the effigy of her sovereigns on her coins.

With regard to charms, on the other hand, the evidences of foreign influence are overwhelmingly numerous. In the present article I am confining myself as much as possible to Chinese coins, considered in relation to their relation to the evolution of money in China. I will therefore limit myself here to stating that, of the six hundred or so varieties of charms I have examined, about half contain evidences of foreign influences.

On the whole, I think the study of Chinese coins will lead us to draw the following inferences:—

In ancient and prehistoric times the country we now call China was inhabited more or less sparsely by various tribes who were acquainted with several metals, which they combined in various proportions, forming different kinds of bronzes; that

* Drawings of two of these are shown on Plate 1.

having discovered how to mould their bronzes, they melted them into shapes, bearing a religious signification; that the pieces of bronze so shaped were, in the first instance, used as charms to avert malign or attract benign influences.

The second stage was reached when such pieces of bronze were selected for recording grants, treaties, agreements, or promises. As China became populous, as intercourse among the various tribes and communities became more frequent, as the mutual obligations of tribe to tribe and town to town became more complicated, the records of these grants, treaties, agreements, and promises became more numerous. The usage seems to have originated of indicating on these records the party under an obligation and the nature of that obligation. Where the grantor of the piece of metal was powerful, it would sometimes, as in the case of land, be equivalent to a title-deed—in other cases to a title to specified commodities, to a certificate of honour or pardon.

Where such pieces of bronze passed between tribe and tribe they seemed to have expressed the obligation of the tribe granting the bronze to give something to or to do something for the tribe to whom the bronze was handed.

As the tribes increased and split up into village communities, the communities, in their intercourse with each other, seemed to have adopted the same form for recording their obligations as were used by tribe with tribe, namely, a piece of bronze, to the shape of which the idea of supernatural inherent power attached is selected. Forms of inscriptions originally denoting great solemnity still continue to be used, and on the record is further inscribed the nature of the obligation. These obligations, as civilisation increased, became as various as the needs of the communities—military and domestic service, cutting forests, building weirs, draining marshes, agricultural produce, farm labour, cattle, clothing, metal, &c. The coins recording such obligations will necessarily be, in some particulars, uniform, in others various. Thus the thousand or so varieties of the coins of the Ch'is that have come down to us (see Figs. 33 to 40) are all of the same size and shape. Over ninety per cent of them have the same inscription on the face. The varieties are generally found on the obverse.

In course of time a third stage in the evolution of money in China gradually develops. Metal becomes more and more the desideratum of all classes. The warrior requires it for his arms, the husbandman for his agricultural implements, the householder for his domestic utensils, the workman for his tools, &c. Metal thus gradually becomes a more or less recognised medium of exchange.

At one period, in certain localities in China, bronze arrow heads became a much used medium of exchange. A drawing

of one such arrow head will be found on Plate 1. The most cursory examination of this coin shows the following facts: (1) It is really ancient. (2) That, though it has a place for a shaft, it could never have been used in war, it being far too thin and flexible and light. The shape was therefore merely conventional. Most of these arrow heads have on them one character, similar to the characters on the knife coins of unidentified tribes. (See drawings Nos. 46 and 47.)

That these arrow heads were largely used as media of exchange is evidenced by their number, and from the fact that the word *ch'ien*, or money, is derived from *ch'ien*, an arrow.

A fourth stage in the evolution of money in China was reached when metal, having become a medium of exchange, pieces of bronze, with their weight stamped upon them, were issued. At first such inscription was simply a certificate of weight. It gradually ceased to represent the actual weight, and became a certificate of value. The date of the issue of the first of such coins is probably about B.C. 255. It was issued in what was then the most flourishing part of China, and continued to be issued concurrently both with more archaic and modern forms of coins till, probably, the tenth century A.D., and while we find reversions to the old shapes, which originated in religious ideas, the convenient round form of coin, with a hole in the centre for stringing, more and more prevails from this time forth.

In the course of the eight centuries between B.C. 200 and A.D. 600 silver became *par excellence* the standard of value, and the copper and bronze coins issued bear some relation in value, more or less, fixed to the ounce of silver. The ounce of silver is divided into 10ths, 100ths, 1000ths, instead of into halves, quarters, 16ths, 256ths, &c., or such awkward amounts as $5/32$ nds, $3/32$ nds, &c. The idea that the issue of coins is a sovereign's prerogative germinates, and as early as A.D. 454 a coin is issued on which is inscribed the name of the reign of the sovereign issuing it. In the Tang dynasty, A.D. 618 A.D. 950, this placing on the coin the name of the sovereign's reign becomes a constant practice, and in the time of the Sung, from A.D. 960, a universal one.

The use of coins in money was then, A.D. 960, established in China on pretty much the same system as it exists in the present day.

It does not enter into the scope of my present article to treat of medals, charms, bank-notes, &c. I am therefore reluctantly compelled to delay consideration of these subjects to some future occasion, merely mentioning that the earliest bank-note I have seen belonged to the 15th century. I believe such notes existed some two centuries previously. Government bills have during the last century or so been frequently issued, and were till

recently constantly repudiated. Foreign loans belong exclusively to the last twenty-five years. It is hoped, both for the sake of China and of future bondholders, that the repugnance against these loans existing in the Chinese mind will not weaken, and that such loans will not be contracted to an undue extent.

EVOLUTION OF MONEY IN CHINA.—THE FIRST OLD CHINESE COINS.

The Chinese are rich in works on numismatics, more or less exhaustive, which generally quote the same authorities for their statements, and which class the coins in pretty much the same order.

It is proposed in the present article to give in their order the first drawings in one native work, the "*Ch'ien chi hsin pien*," to attach to the drawings the gist of the statements of native scholars on the coins represented, and to add a few explanatory and critical observations.

The word *ch'ien*, which is translated coins, includes besides money, medals and charms—pieces of metal of various uses and significations, which will be alluded to in the observations.

It is not probable that the oldest of these coins are really as ancient as believed by certain native scholars; that some are of great antiquity is indicated by the appearance on them of what the Chinese call "red, blue, and green rust." The *red rust* is the appearance of age shown by bronze in which gold is present. The blue and green are different manifestations of sulphate of copper. Further, different kinds of bronze conduct heat in varying degrees—they feel differently, and can be distinguished by sense of touch. Though the demand by Chinese for certain ancient coins, believed to exercise benign influences, is so great that counterfeiting such coins is, and has long been, an industry, even the most skilful counterfeits, made of old bronze melted down for the purpose, can be detected, as the Chinese chemists have not yet succeeded in giving such counterfeits the same red, blue, and green rusts which are naturally produced by age.

Religious motives have probably often determined the curious shapes of many Chinese coins. It is possible that some of the earlier Chinese coins may have been the records of contracts. In such cases the shapes may have been selected to give a greater solemnity to the contract by attaching to its record a religious sanction. In other cases such shapes may have been selected to propitiate benign and avert malign influences.

Other shapes, such as the round shape, may have been adopted from simple motives of convenience.

The drawings are in all cases the same size as the coin represented.

Fig. 1.—Coin ascribed to mythical Emperor Yao, who is stated to have reigned for ninety-eight years, namely, from

B.C. 2356 to B.C. 2258. The deciphering of the inscription on the face of this coin is not given by Chinese numismatists.

OBSERVATIONS.

The inscription may read "Tun-i" districts on the marches, which may have been analogous to the Tun t'ien march lands or "feods" subsequently established in the west of China by the Hans in B.C. 61*

The coin closely resembles Nos. 6, 7, 8, 9, 10, which there is reason to believe belong to the beginning of the Han dynasty—*i.e.*, B.C. 200. These coins are rare. They are occasionally found in West Chekiang and Honan. Their use is doubtful. They may be charms, or records of contract, title deeds to land, certificate of service, or simply ornaments.

Fig. 2.—Coin attributed to mythical Emperor Shun, B.C. 2255 to B.C. 2205. The two central characters are said by some numismatists to mean "current as money." Others transcribe them by characters meaning "agreement made."

Fig. 3.—Coin ascribed by some Chinese numismatists to mythical Emperor Shun, B.C. 2255 to B.C. 2205, and by others said to have been moulded by Shun's great-grandson. Others, again, from the appearance of the metal, vaguely attribute this coin to sometime previous to B.C. 250. The characters $\text{X} \text{I} =$ are doubtless five, one, two.

Fig. 4.—Coin attributed to Emperor Shun, B.C. 2255 to B.C. 2205. Eyelet hole, said by Chinese numismatists to have been drilled at a much more recent date.

OBSERVATIONS.

Coins, 2, 3, and 4 are found in West Kiangsi and Hupei. In all three coins occur the character 𡗗 , which, as stated before, may mean Tun, marches. In 2 and 4 the next three characters are identical, while the two last characters differ. The first two characters in both these coins may be Tun cheng (marches settled), and may be the name of a locality. The second two characters may mean agreement concluded, and the last two characters may be subject-matter of contract. The coins may probably be the records of a contract, as follows: At Tun chen'g it is agreed that such and such commodities (or services) have been (or are to be) rendered.

In No. 3 the second character may be Ko, a spear or spearman. The second line may mean "goods complete, five, one, two," the third line is the same as in No. 2. The coin may possibly be a requisition for stores for a regiment of soldiers fighting on the frontier, or a certificate that military services

* NOTE.— 𡗗 occurs in coins 21 and 22 where Chinese numismatists decipher 𡗗 "1," town lands. It is difficult to see why it should not be so deciphered on coin

have been performed entitling holder to certain rewards, or the march spears may be name of place, in which case the community of such place acknowledges a debt in commodities for military services. From the fact of the same character appearing as in No. 1, it is probable that the date and place of issue of these coins were not very remote from those of coin 1. The date may be B.C. 400 to B.C. 255, or last days of the Chows.

Fig. 5.—Coin said to have been minted by Kao Yang Shih, about B.C. 2205. Characters on face, Shan Yang, a city, or rather district, known in the time of the Hans, B.C. 206 to A.D. 220. Some Chinese numismatists argue that these and the succeeding coins must have been issued in the Han times.

Figs. 6 and 7.—Coins said to have been minted by Kao Yang Shih. Characters on face: An Yang, a city, or rather district, known in the time of the Hans, B.C. 206 to A.D. 220. Character on obverse, probably two.

Figs. 8, 9, and 10.—Coins attributed to Kao Yang Shih. Characters on face: P'ing yang, a district of the Hans, B.C. 206 to A.D. 220.

Fig. 11.—Some Chinese scholars attribute this coin to Kao Yang Shih. Others, again, consider it belongs to the Han period. They read the inscription to mean An yang (city), two pieces of gold.

Figs. 12 and 13.—In the above coins the characters on the face to the left are acknowledged by all scholars to be Yang. The date of both coins seem doubtful. The characters to the right are by some read Yin and Hsu or Tao. If this is correct the inscriptions will read Yin Yang, Hsu Yang, and Tao Yang, names of districts of the Han dynasty. The character on the obverse of No. 13 resembles the modern Chinese character for right hand, but scholars are doubtful as to whether that is its real meaning. There is, too, the addition of a perpendicular stroke, the meaning of which is doubtful. Generally, Chinese scholars consider this and the succeeding coins to belong to somewhat the same period as the preceding ones.

Fig. 14.—The above ten coins are divided by Chinese numismatists into four classes. They are drawn from the coins in collection of Ching, a noted Chinese antiquarian. In this collection there are twenty-five other classes of what are called, from their shape, "bale" coins. They are classed from the characters on them, mostly the names of places in the environments of the Han seat of government.

Figs. 15, 16, and 17 illustrate three of the 29 kinds of coins in the Ching collection. The inscriptions, as explained by most Chinese numismatists, are:—

Fig. 15.—"Tun liu." District in Han times on the marches.

Fig. 16.—“Chang tze,” townlands. District in Han times on the marches.

Fig. 17.—“Chuan,” mound or buttress. District in Han times on the marches.

Fig. 18.—The character on face to the right is said to be “water;” on the left, to be undecipherable.

Fig. 19.—The characters on face are said to be “Ko-i,” spear town lands. The character on the reverse is declared by Chinese numismatists to be inexplicable.

Fig. 20.—The characters on the face are said by Chinese numismatists to be undecipherable, but to bear a resemblance to Figs. 3, 9.

OBSERVATIONS ON COINS FIG. 5 TO FIG. 20.

The above 16 coins are made of the same kind of metal, and are doubtless very ancient. They resemble each other, too, in the delicate tracery of the inscriptions; they are also, with the exception of Fig. 20, of the same shape and weight. They therefore probably belong to proximate regions and dates, as some of these coins (and of other like coins not represented in the “Ch’ien chi hsin pien”) contain on their faces the names of localities in the realm of the Hans. The inference arises that the native numismatists who ascribe them to about the Han times are correct. If so, their date will be somewhere between 300 and 150 B.C.

Fig. 5 has on its face the name of a Han locality and a plain reverse. It is difficult to decide whether it is a medal, charm, ornament, record of contract, or what.

Figs. 6, 7, 8, 9, 10, 12, 15, 16, and 17 have on their faces the name of a Han locality, and on their obverses the numerical figure for two. These and similar coins may have been issued by the communities of the several localities as acknowledgments of indebtedness in a certain quantity of unexpressed but understood commodities.

In Fig. 11 the inscription deciphered as An is not written in the same way as the AN in An Yang. It is written in the same way as AN—the An tribes of Shên hsi. In no other coin is AN deciphered as standing for Yang. Like Fig. 5, Fig. 11 has a blank obverse. Unlike Fig. 5 it has the numeral two on the face. For the reasons before stated, Fig. 11 probably belongs to the same date nearly as the other coins of the group. Possibly this coin may be an acknowledgment of tribute due from the An tribes to the victorious Ch’in or Han, B.C. 255 or B.C. 206.

In Fig. 13 the character on the left, read Yang, is unlike the Yang of the other coins. The character on the right, taken ideographically, is a canopy, a tree, and something unintelligible. It is possible the two characters on the face represent a locality where there were forests. The characters on the reverse doubt-

less imply a certain quantity of labour, whether we follow Chinese authorities, and take 𠂇 as a combined character, meaning right hand, or decipher its component parts ideographically, 𠂇 hand, 工 work.* The coin may possibly be a record of engagement to provide a certain amount of labour to clear forest land.

Fig. 14 introduces us to a type of inscription not found in previous coins, and not deciphered by Chinese numismatists. If deciphered ideographically the inscription on the face would represent two houses and a woman, three men in normal position, and two men reversed. If deciphered on the combined system, the meaning might be domestic slaves. It is possible this coin is the record of a transaction having slaves as the subject-matter.

In Figs. 15, 16, and 17, the mode of writing is different from that in previous coins. Perhaps in these the mode of writing of bordering tribes instead of the Han mode was adopted. There are reasons for accepting the deciphering given by Chinese numismatists as correct, and as in the cases Figs. 6, 7, 8, &c., these coins may be records of the communities of the localities named being liable to be called upon to give certain commodities.

Figs. 18 and 19 seem to present yet another variety of type. Fig. 18 may be the record of an obligation as to water, marshes, fishing, or weir making. In Fig. 19, 𠂇 may perhaps be "people," "folk," rather than town lands. Ko (spear) may be used in same sense as Tun, a word with a similar signification. The inscription on the obverse 𠂇 may be subdivided, — one, 𠂇 a fixed quantity, 𠂇 tien, land. 𠂇 is the character in Tun tien, the *feods* on the marches previously mentioned as granted by the Hans in B.C. 61. The meaning of the inscription on the coin may be—face, warrior; obverse, "one lot land." The coin is possibly a species of title deed for a plot of land held on military tenure.

Fig. 20 is slightly different in shape from the coins previously described. The style of writing also differs. Deciphered ideographically, some sort of vegetable produce and a reaping-hook may be indicated (𠂇 𠂇 being ideograph for herb). The coin may represent an obligation to give over a portion of a harvest.

Figs. 21 and 22.—Some Chinese numismatists state that the great Emperor Yü, who drained off the waters from China,

* Chinese characters are divided into six classes: (1) Ideographic, as 日 sun, 月 moon; (2) indicative, as 上 above, 下 below; (3) combined, as 明 light, 𠂇 right hand, 𠂇 left hand; (4) phonetic, as 𠂇 kiang, a river, from water and sound, kung; &c.

divided China into nine provinces, and issued coins for each, and attribute these coins to that period, B.C. 2205 to B.C. 2197. Others ascribe them to the Hsia dynasty, which Yü is reputed to have founded, B.C. 2205 to B.C. 1766. Others say these coins are not money, but charms. Others that, though ancient, the real date cannot be ascertained. The inscription on the face is said by Chinese scholars to be "An town, valuable for two pieces gold." The An town they state was near the modern Hsia hsien, in Shên hsi, attributed by some to the Hsia dynasty.

Inscription on Fig. 23 reads, "An district, two pieces gold." [Pieces gold I doubt.]

On Fig. 24, "An district, one piece gold value." Some Chinese numismatists think a name of a barbarian town should be read instead of An district. Note Fig. 24 has eyelet hole at bottom for stringing.

OBSERVATIONS.

Figs. 21, 22, 23, and 24 are found in Shen hsi. They were probably issued by the An people previous to B.C. 250. The inscriptions on the face of Nos. 21 and 22 may indicate—

An	{ town	Two	{ pieces gold
	{ tribes		{ goods complete

The inscription on the obverse of Fig. 21 may represent an ox's head under a canopy. The coins may possibly be an acknowledgment of debt in cattle.

Fig. 23 is probably a contract by the An people having 一, whatever that may be, as its subject-matter.

In Fig. 24, if the character to the right is rightly deciphered by those native numismatists who consider it the name of a non-Chinese town or clan, the coin is possibly an acknowledgment of debt to the Ans by some non-Chinese tribe in their vicinity.

COINS ATTRIBUTED TO SHANG DYNASTY, B.C. 1766 TO B.C. 1122.

Fig. 25.—Chinese numismatists generally agree that the characters on the face of this coin are "T'ang gold," and on the obverse, two; and as T'ang (which by the way also means marsh pond) was the reputed name of the founder of the legendary Shang dynasty, they ascribe the coin to that dynasty, and state it to be a coin for two pieces of gold. The date and use of this coin are doubtful.

Fig. 26.—Some numismatists unhesitatingly ascribe this coin to the Shang dynasty, B.C. 1766 to B.C. 1122. Others state they think it belongs to one of the three dynasties, B.C. 2205 to B.C. 250. The most accepted deciphering of the inscriptions on face and reverse are, "Shang pu tang chin shih huo," *i.e.*, "Bales of merchandise, with gold current for ten lots."

OBSERVATIONS.

The deciphering of *金* by "gold" doubtful; "goods" a preferable rendering. Many of these coins are extant. In the metal they are made of they resemble coins of the third to the fifth century of our era.

Fig. 27.—Chinese scholars, but with some hesitation, read the inscription on the face of this coin "Kung," and on obverse "Tsze." They take the two characters together to mean "heir apparent." No reason is given why this coin is ascribed to the Shang dynasty.

Fig. 28.—Why ascribed to the Shang dynasty I do not know. Characters on face read by Chinese "Fu pei." N of the Fu on obverse. Some read the characters "Shang huo," merchandise, or covenanted goods; some "Shang chin," marketable metal.

OBSERVATIONS.

Coin Fig. 27 is probably only a charm. It is not possible to fix its date accurately. It is not likely that it is older than the Christian era.

Coin Fig. 28 has a large hole for stringing, for convenience in carrying, and hence it may be inferred that it was intended to be negotiable and carried in quantities. If the deciphering "Fu pei" be accepted, these coins represent probably indebtedness by the communities of a locality. If Fu pei be taken, the coins would possibly be a record of obligation to pay tribute. Judging by the metal of which the coin is made, and for other reasons, it is not probable that this coin is older than the Christian era. It is very probable also it may be one of the coins of the "Pu" (bale) shape, issued in the times of Wang mang, about A.D. 9, which have not yet been identified.

COINS ATTRIBUTED TO THE CHOW DYNASTY, B.C. 1122 TO 255.

Figs. 29 and 30.—Chinese numismatists state that two kinds of round flat copper were issued by the Chows—one with rims, the other without rims—as money, without any inscription; but as such coins have since been issued, in times of warfare, up to quite a recent date, they acknowledge that it is impossible to fix the dates of the extant specimens. None of the extant specimens I have seen could be attributed to an earlier date than the 5th century of our era. Some are undoubtedly as recent as the 15th or 17th centuries.

Fig. 31.—A brief notice in ancient works, that the Ching prince of the Chow dynasty, B.C. 618, issued 50 coins, causes some Chinese numismatists to say that this is the only one of the 50 now extant. Others attribute this coin to Ching's successors.

OBSERVATIONS.

This coin is doubtless money in the proper sense. The characters on it are in comparatively modern style. Pao huo, current goods or value. The use of Pao for "current coin" is also very modern. The specimens I have seen of the metal of which this coin is made resemble the metal of the end of the Tang and beginning of the Sung dynasty coins, A.D. 960. For other reasons, too, it probably belongs to about that date.

Fig. 32.—Chinese numismatists say there is not the slightest doubt this coin belongs to the Chow dynasty. The inscription on it is, "Weight one liang twelve chu" (or weight "twelve chu of one liang," liang being a Chinese ounce and chu the 16th of an ounce). An ancient Chinese author has said: "The Chows issued coins weighing twelve chu." This coin does weigh twelve chu.

OBSERVATIONS.

The metal of this coin resembles the metal of coins belonging undoubtedly to B.C. 250. It is the same kind of metal as in Figs. 48 and 49, which will afterwards be remarked upon. There are many reasons, intrinsic and extrinsic, for considering that the Chinese numismatists are right in ascribing this coin to the Chow dynasty. Its date is in all probability a little previous to B.C. 255. It marks an advanced stage of development in the evolution of money in China. Metal must have been at the time, in the place of its issue, a very general medium of exchange, and commerce must have reached to a great magnitude to have evoked the idea of subdividing metal into pieces of fixed weight, with the amount of the weight of each piece upon it.

COINS OF CHI STATE, ABOUT B.C. 245.

Figs. 33 and 34.—Inscriptions on face of these coins, translated by Chinese, "Chi state—heir-apparent's commodity." Reverses not translated.

Figs. 35 and 36.—Inscription on face of these coins, translated by Chinese, "Chi state—heir-apparent's commodity." Reverse 35, "three hundred;" reverse 36, "three great."

Figs. 37 and 38.—Inscription on face, translated by Chinese: "Chi state—heir-apparent's commodity." Reverse, "three upper or superior." Inscription on obverse is explained by Chinese as "three commodities."

Figs. 39 and 40.—See subsequent observations.

Figs. 33 to 40.—Chinese state that the Chi ruled in Shantung for 744 years.

Some explain 㒼 in the inscription to mean "heir-apparent." If they are correct, that would date the first issue of these coins

to B.C. 245, the date of the assumption of that title. Scholars generally admit that these coins continued to be issued after that date. Some scholars deny that these coins were in any sense money, and declare them to be charms. Some scholars state with regard to Fig. 39 that one of the Chi sovereigns, being hard pressed by his enemies, enlisted criminals (rebels) into his army, to whom he granted a pardon, and that these coins were the means by which they were redeemed, *i.e.*, certificates of pardon.

Fig. 40 is deciphered by Chinese scholars as "Chieh mo"—heir-apparent's commodity.

OBSERVATIONS.

The Chis undoubtedly flourished in Shantung for many years. They are mentioned as being one of the nine states flourishing in the times of Confucius—that is, the sixth century B.C. according to some scholars. There are sceptics who are not convinced that the dates ascribed to the Confucian literature can be received implicitly; but all admit that it embodies most valuable ancient traditions. The Chis appear again as one of the six amalgamated states in the third century B.C. Conquered by the Hans in the second century B.C., they appear among the nine states tributary to the Hans B.C. 206 to A.D. 220.

Of these coins, more than a thousand varieties—some varieties in considerable quantities—are still extant. They are still frequently found by the Shantung farmer, as he ploughs the land or excavates the ground to build a house. They weigh one and three-tenths of a Chinese ounce. They are made of beautiful bronze metal, in which there is an admixture of gold.

The vast majority of the specimens and varieties have the same inscription on the face—namely, that on Figs. 33, 34, 35, 36, 37; the obverses, except that they all contain the number three, differ widely.

Many reasons, too long to state in full, make it very improbable that "heir-apparent" is the correct deciphering of 承. The inscription 承 though not the character Chi the name of the tribe, is almost certainly the symbol chosen by the Chi as their mark. It is extremely improbable that all these coins were merely charms—it is possible a few may have been so—it is nearly certain that none of them were money in the modern sense—and almost as certain that many of them not merely contain germs of money but are in themselves stages of development in the evolution of money in China.

It is probable that in Figs. 33, 34, 35, 36, and 37, and in the majority of the thousand or so coins called by collectors "the three character Chi knives," we have on the face the uniform solemn record of an obligation or debt, and on the obverse uniformly the number three, possibly not meaning a quantity,

but expressing a religious idea and a specification of the nature of such debt or obligation. From an examination of the various inscriptions on the obverses of different coins, it would seem that these obligations vary in their subject-matter. "Service for periods of time," "Agricultural produce," "Cattle," "Slaves," "Land," "Metal," &c., &c., seem to be some of the subject-matters of these contracts.

It is very probable that Fig. 39 (which, by-the-by, is very rare), may have been used by malefactors who had served in the Chi ranks "for redeeming themselves," *i.e.*, as certificates of pardon; but it is more probable that they were also issued to all the soldiers as a solemn promise to reward them with "ten commodities," *i.e.*, with ten-tenths of the stipulated reward, or, as we should say, "their pay in full."

With regard to Fig. 40, in all probability the deciphering of the first two characters is correct. We have thus Chieh mo instead of Chi; but "太 and commodities" (these characters, as previously stated, were probably the formal record of an obligation) still remain. Now Chieh mo is the name of an ancient locality in Shantung. The coin may therefore be taken as a record of indebtedness on the part of the community of Chieh mo. There are several other similar coins extant which are called by collectors four, six, and eight character Chi knives, from the number of characters engraved on them, which contain on their faces inscriptions denoting other ancient localities in Shantung, with varying characters on the obverse. It seems probable that such coins are records of the communities of the several localities' indebtedness in respect to certain subject-matters specified on the obverse.

These coins are sometimes found singly and sometimes in varying quantities; sometimes in jars under old ruins and sometimes even strung on bronze wires. It is not rash, therefore, to infer that they were "negotiable instruments," and were hoarded. Had they only been charms they would have been all worn singly, as doubtless a few were, for there is good reason to suppose that after they had ceased to be negotiable they were valued for their supposed innate power of averting malign influences. The date of these coins is probably from 400 to, say, 50 B.C.

Coins attributed to Chü State, B.C. 246.

Fig. 41.—Characters on face not deciphered with certainty. ㄥ said to be left hand. Character on obverse stated to be probably Chü.

Fig. 42.—Character on face not deciphered. ㄣ said perhaps to be right hand. Character on obverse stated to be probably Chü.

Fig. 43.—Character on face not deciphered. Obverse read Chü.

Fig. 44.—Character on face deciphered “Hing”—to go, walk, current. Character on obverse Chü.







Fig. 45.—One most eminent and learned Chinese numismatist denies the antiquity of this coin. Others, with more or less hesitation, ascribe it to the Chü tribes.

Fig. 46.—Read “Hing”—to go or walk. Some numismatists consider this the name of some state or tribe. Some think it was issued by the Chi's.

Fig. 47.—Read “Ki.” Some numismatists consider this a Chü coin, some a Chi coin, and some a coin of a separate tribe.

The Chüs were a tribe of non-Chinese origin existing in Shantung from the fifth to the second century B.C.



OBSERVATIONS.

I have seen drawings of several hundreds of varieties of these coins. Of the actual coins I have seen but few. These, judging from their metal and appearance, I should deem old. None that I have seen, however, bear the unmistakable *red*, green, or blue rust. The great majority of these coins have on one side the inscription , which is probably the sign for the Chü tribe. The inscriptions on the other side vary. If we adopt the system of deciphering that generally succeeds with ancient Chinese characters we should succeed only in a few instances in finding a meaning at all, and that meaning might be utterly wrong, as we may be dealing with non-Chinese characters, and do not know the rules of the game. For example, if we were certain we were dealing with Chinese characters we should have little hesitation in deciphering  as left hand,  as right hand,  two men seen in different positions, therefore moving, or in the abstract “walking,” “motion,” “current.” Following out the same rule of the game we should decipher some of the other characters on these coins as “learned or civil distinguished from military,” “an enclosure,” &c., &c., but if we are dealing with non-Chinese symbols we are thrown on a sea of conjecture. How can we know that  may not be the symbol of a spear held fighting fashion, or war, or of a falling tree, or decay, or of a man bowing, or subjection?  might equally be water flowing both ways, or a water-shed, as motion.

With regard to these coins, I am unable to do more than offer the following purely conjectural hypothesis: That as the *occurrence* of the symbol for Chü resembles the occurrence of the symbol for Chi in coins Figs. 33 to 40, and as the inscriptions on the other side vary in the same manner as on the Chi coins, a similar inference may be deduced—namely, that the coins Figs. 41 to 44, *et hoc genus omne*, express a record of the

obligations of the Chu tribes specified by the symbols on the other side of the coins.

With regard to Fig. 45, Mr. Li, who considers the coin spurious, does not generally err on the side of incredulity.

Figs. 46 and 47 may have been issued by tribes which took  and * for their symbols. Such marks may be only family or trade marks of makers. As to the use of these coins, many Chinese numismatists are silent, and possibly their silence is judicious.

Coins of Ch'in Dynasty, B.C. 221.

Figs. 48 and 49.—The inscription on these coins means “half a tael.” This is the actual weight.

OBSERVATIONS.

Date, probably correctly stated by Chinese numismatists; value, probably its own weight in metal, now beginning to be a recognised medium of exchange.

The Ch'ins overthrew the Chows in B.C. 255. As previously stated, the Chows in the last years of their dominion had issued coins weighing three-quarters of a tael. (See Fig. 32.) It was in all probability in imitation of the *twelve Chu* (three-quarters of a tael) coins that the half-tael of the Ch'ins was issued. From this time forth, B.C. 221, for nearly twelve hundred years, coins, with the words “half a tael” engraved on them, were issued in great numbers. These latter coins do not, however, weigh half a tael; they are of various weights, down to one-tenth of a tael. The half-taels of the Ch'in are easily recognised by the metal of which they were made, in which there was an admixture of gold. The other “half-taels”—and the varieties are endless—for the most part very difficult to assign a date to.


Han Dynasty, B.C. 206 to A.D. 220.

The weights of Figs. 50 and 51 said to be not quite 8 chu. By this date the chu had decreased in weight. Weight about $\frac{1}{4}$ oz., val. 20 = 1 tael of silver.

Figs. 52, 53, 54, 55, 56.—Half-taels. B.C. 179. Weight, $\frac{1}{8}$ of a tael.

Figs. 57 and 58.—B.C. 140. Weight, $\frac{2}{32}$ of a tael.

Figs. 59 and 60 have rims. Some numismatists say these coins were only used by Government officials; others that 28,000,000 were issued. The 5 chu, like the half-taels, continued to be issued for several hundred years after B.C. 113. Most of

* This character  appears on ancient bronzed arrow heads.

the varieties are very difficult to date. From the metal they are made of I should say some were as modern as the 10th century of our era.

Figs. 61 and 62.—Ta Chuan Wushih. Large coins, "five tens." A.D. 9.

Figs. 63 and 64.—Ta Chuan Wushih. A.D. 9.

Chinese numismatists notice that in the previous five coins we have a reversion to the ancient form of writing.

In Figs. 64 and 65 we have the reversion to the ancient idea of charms or talismans. On the obverse of these coins is the representation of a sword, the constellation of the Great Bear, a tortoise, and a snake—that is, representations of the malign influences, and of the powers that counteract them.

Fig. 66.—Hsiao Chuan Chuh Yih. Small coin. Value, 1 tael. A.D. 9. Chinese numismatists say that at the same time this coin was issued there were also issued four coins, bearing on their face, "one ten," "two ten," "three ten," and "four ten" respectively.

[Drawings of these four coins are given in the book *Ch'uan chi* 泉志, Chapter 4, page 2.]

Figs. 67, 68, and 69 are called Wang mang knife coins, from the name of the emperor who issued them, and from their shape or inscription. The inscriptions on Fig. 67 are, a knife, "five hundred;" and on Fig. 68, a knife, "five thousand." On Fig. 68 the characters for a knife are of gold, inlaid; and on Fig. 69, a knife. On Fig. 70 the inscription is "Huo pu," lit., "goods, cloth, bale;" on Fig. 71, "Ta hwang pu tao," lit., "great yellow bale knife."

With regard to the former, Chinese numismatists say it was worth twenty-five of coins Figs. 72, 73, 74, or 75. With regard to the latter, they suggest as possible that "yellow" may have meant current, "bale" may mean worth, and knife with the dots may mean a thousand. I think it probable these coins may have been simply charms. The *Chuan chi* classes them neither with money nor charms, but in a separate category.

Ten other similarly shaped coins were issued at this time, said, by Chinese antiquarians to have been worth from 100 to 1,000 five-chu coins. (Drawings of these ten coins are given in the *泉考*, Chapter 9, page 3.)

Huo Chuan. A.D. 9. "Goods coin." Figs. 72, 73, 74, 75, and 76, like the Pan liang (Figs. 50 to 57), and the Wu chu (Figs. 58 to 60, &c.) These "Huo chuan" continued to be issued for many hundred years. It is impossible to fix with accuracy the date of the extant specimens. Several are found among the Sung coins, which date from the tenth to the beginning of the thirteenth century. They must have been then current, though their issue had probably ceased before.

Fig. 77.—Pu chuan means “cloth value.” The Chinese call this the “male coin.” It is said that those who carry this coin on their persons will have male offspring.

Wu Chu. A.D. 25. Fig. 78.—See Figs. 58 to 60.

Wu Chu. A.D. 168. Fig. 79.—The four marks on obverse are said to be the four quarters (north, east, south, west) in which the coin was to be current. One numismatist remarks, “No sooner were these coins made than a rebellion broke out in the capital, and the coins were actually dispersed to the four quarters.”

Debased coins. A.D. 210-220. Figs. 80 and 81.—Coins exceedingly thin.

Epoch called by Chinese Historians the Epoch of the Three Kingdoms, A.D. 221-419.

Figs. 82 and 83 have on face “one hundred five chu,” meaning, probably, nominal value one hundred Wu chu coins, then current. Subsequently we find about 460 Wu chu worth 1½ oz. silver.

The character on obverse of Fig. 82 is not understood. It looks like Wei (“to be”). On Fig. 84 the only inscription is “one hundred.” On Fig. 85 only “five chu;” but the “five” is to the left instead of right. Others, like Fig. 82, but with other inscriptions on obverse, were issued.

Fig. 86 is slightly larger than Fig. 87.

Figs. 88 and 89.—It is said that similar coins, with barbarian characters on the obverse, were also issued. These coins were melted down (it is said) to make domestic utensils.

Tsin State. A.D. 265 to A.D. 419. Fig. 90.—The identification of this coin is very doubtful. It is believed to be one of two coins said to have been issued by the Tsins.

Epoch called by the Chinese Division of North and South, A.D. 386-618.

Other coins were also issued at these dates. The identification of them is doubtful. Inscription on Fig. 91, “four chu;” on Fig. 92, “five chu.”

Figs. 93 and 94.—The characters on the face of these coins is Hsia chien, the title of the chief of the Sung in A.D. 454. This is the earliest instance in China of the now general practice of inscribing on a coin the name of the reign during which it is issued. Obverse, “four chu.” (See Fig. 113.)

Fig. 95 has on it “two chu.”

Fig. 96 has Chin gho, name of reign, chief of Sung, A.D. 465.

Fig. 97, said to have been issued in A.D. 491, after the model of Han coins. (See Fig. 59.)

On the obverse of Figs. 98, 99, and 100, the four marks, meaning the four quarters (N. E. S. W.), were probably put for luck sake. Besides the coins here represented the Liang dynasty issued an iron coin, the most ancient piece of Chinese iron I have seen. On the face of Figs. 99 and 100 is written "great pervading," "great felicity." Another coin has on its face "great happiness." These three coins were issued A.D. 524.

Fig. 101 has a rim both sides, and is called by the Chinese "the male five-chu." Coin Fig. 102 has no rim on the obverse. It is called "the female five-chu." Figs. 101 and 102 were issued A.D. 502.

Figs. 103 and 104, and various other varieties, with different dots and stars, were issued in A.D. 558.

Figs. 105, 106, 107, 108, 109, and 110 are ascribed to the Lian dynasty, with doubt. They are said to have been issued by private individuals. No. 107 has on it "five pearls" or "beads," not five $\frac{1}{32}$ nd of a tael.

On Fig. 108 is the inscription, "great peace one hundred cash." This is the earliest coin on which the modern character for cash appears. On Fig. 109, "great peace one hundred gold," which means "very valuable." On Fig. 110, "settled peace one hundred." These coins seem to have been used both as currency and for charms. Of these coins, Figs. 108 and 109, there are also two other varieties.

Fig. 111 is similar to Fig. 77. It is said to have been worth 100 smallest coins. In A.D. 562 a coin having "five chu" on it, with ten goose eyes (Fig. 106), was issued.


Fig. 112 has on it "tai huo liu chu," "great wealth six chu." Referring to the character for six , the Chinese say "it was remarked at the time that it looked like a man with his arms akimbo, weeping for the Son of Heaven, and, in fact, the emperor did die shortly afterwards."

Fig. 113 has on it "tai ho," the name of reign, and was issued in the nineteenth year of that period, *i.e.*, A.D. 486.

Figs. 115, 116, and 117 have on them "Yung an," and are said to have first been minted in 529, but as they were supposed to be fortunate coins they continued to be minted for about fifty years. Yungan is the name of reign A.D. 528 and 529. (Fig. 93.)

Figs. 118 and 119.—These coins were issued A.D. 554. On the face is, "continual peace five chu." On the obverse of Fig. 118 a representation of the sun, the moon, and the great bear. (See Figs. 64 and 65.)

Fig. 120.—When issued was issued for five-chu pieces. The inscription reads "Pu ch'uan." (See Figs. 77 and 111.)

Fig. 121 was issued A.D. 575 for ten five-chu pieces. The inscription reads "five elements great bale." It was repudiated in A.D. 579.

Fig. 122 contains the same inscription as Fig. 121. It was a medal rather than money. (See Figs. 64, 65, and 118.)

On Figs. 123, 124, and 125, which were issued A.D. 580, and are of whitish bronze, is the inscription "Ever pervade the myriad kingdoms." When issued they were supposed to be worth ten of Fig. 121. Another coin same as Fig. 124, but smaller, was issued about the same time.

Fig. 126.—On this coin occurs the words "Han hsing," the imperial title assumed by a member of the Chêng clan in A.D. 304. The Chêngs were of great stature, and were said to be descendants of giants fifty feet high. [Possibly the Greek legends of Titans reached China through Bactria and other of the Asiatic kingdoms founded by Alexander's generals.] The age of this coin is doubtful. I do not think it can be attributed to the Chêng state. Han hsing means "may the Chinese prosper." It is possibly an ancient charm.

Fig. 127.—The inscription reads "Fêng huo"—abundance. This coin is called a happy coin because the possession of it is said by the Chinese to confer happiness. It is almost certain that this is an ancient charm. Its date, however, is doubtful. The Chao was a race of foreign origin in Fokien. The coin may have been called a "Fu" (happy) coin, from its being found in Fu or Fokien.

Fig. 128.—Some Chinese numismatists attribute this coin to the Kitan Tartars, who ruled in the north of China A.D. 916 to A.D. 1168. I have not seen the coin in question. The Chinese inscription is not only modern in form, but the expression in it, "Hsing pao" (current value) is modern. The form of writing closely resembles that of a coin of the Kitaru Tartars now in my possession, of the undoubted date A.D. 1083.

The Chinese regard the Chêngs, the Latter Chao, and the Northern Yens as usurpers.

Figs. 129, 130, and 131 are called by the Chinese "Pai la wu chu" (white metal wu chu). They are of a mixture of brass, iron, and tin. At their first issue about 200 went to the pound avoirdupois. They were afterwards deteriorated till 800 went to the pound. Later on in this dynasty sheet-iron, leather, and pasteboard were made to serve as coins.

Tang Dynasty, A.D. 618-905.

During the time of the Tang dynasty the form of money now in use in China became prevalent. That in bronze or copper coins weighing each about the tenth of an ounce became the unit of currency. On the face of the coin are words showing the reign during which it is issued, and stating the coin is currency. By the tenth century the evolution of money in China had reached the modern stage in which it at present exists.



COTTON INTERESTS, FOREIGN AND NATIVE, IN YORUBA, AND GENERALLY IN WEST AFRICA—

ON THE EXTENSIVE EMPLOYMENT OF COTTON IN THE FORM OF
A NATIVE MANUFACTURE, AS A CONVENIENT CURRENCY—AND
ON THE REPATRIATION OF THE NEGRO, TO PROMOTE, ON ANY
DEFINITE AND ESTABLISHED BASIS, THE DEVELOPMENT OF HIS
OWN COUNTRY.—(See Map.)

BY HIS EXCELLENCY GOVERNOR MOLONEY, C.M.G., OF LAGOS.

[Addressed to the Members in the Mayor's Parlour, on Friday, November 15th,
1889, at three p.m., His Worship the Mayor of Manchester in the chair.]

IT is indeed with pride and pleasure I find myself here to-day, in response to your invitation, to deliver an address on subjects of common and general interest to this great industrial centre. In these days of severe international competition—for it must be acknowledged we have ceased to be the commercial monopolists we have been, excepting perhaps Lancashire—it would seem to be a duty specially incumbent on us—indeed one that has become imperatively necessary—to consider, without loss of time, how, one and all, we can best serve the interests of those countries on which we depend, not only to get rid of our surplus manufactures, but also for the raw material for such.

It has therefore occurred to me that I should best serve Negro interests, and British so far as they are connected with Negroland, by submitting for your generous hearing some remarks on the cotton interests, foreign and native, of Yoruba and West Africa, on the *pagn* currency of the Gambia, and on the repatriation from the New World of the Negro, to promote on a permanent and extensive basis the development of his own country, and thereby British interests.

On the occasion of his visit in 1822-24 to Sockatu (Sockatoo), Captain Clapperton was favoured by Sultan Mohammed Bello, of Houssa, with a geographical and historical account of Takroor (*vide* Appendix xii. to "Discoveries in Africa," by Major Denham, Clapperton, &c.), in which we find mention of Yarba (Yarriba or Yoruba) as an extensive and interesting province flanked by the sea, and having an anchorage for ships of the Christians who visited the coast to purchase slaves

obtained in Central Africa, notably Houssas, who were sold to the Yarbas, and by them resold to the Christians.

We also find in the same work a map of Central Africa, which shows the middle Niger, and fairly accurately the positions of Boussra (Boussah or Boussang) and of Yarba, with the direction of its trade route to the seaboard, which agrees with one that at present exists *viâ* Iseyin, Abeokouta, and Badagry—famous as the starting-point across Yoruba to Boussah of Clapperton and the Landers.

On the authority of Bello, the inhabitants of Yarba descended from the children of Canaan, who were of the tribe of Nimrod. They were driven into East Africa out of Arabia by Yaa-rooba, son of Kahtan, and they subsequently migrated westward and established themselves at Yarba.

Again, the name Yoruba is associated with Quorra (*goru*, river, in Fulah, and the affix *ba* great), viz., the people of the great river.

Among themselves, Yoruba is given as the name of a former king of one of its provinces, who succeeded to rule over all to which he gave his name. Yorubaland may be said to be now composed of the area situate south of the 9° of N. latitude, between the Ewe territory (Whemi or Dahomey) and the Niger main stream.

The territorial wedge situate between the Volta and Niger rivers is divided between the Ewe and Yoruba speaking peoples, the former occupying the western and the latter the eastern portion, contiguity being represented by the longitudinal line through the mouth of the Ajera or Giddy river, continued to the territory of the kingdom of Borghu.

The population of Yoruba is given as 3,000,000, its area as 25,000 to 30,000 square miles, and it may be compared in size to Belgium and Holland. Over it we have for years directed from Lagos our influence. Our relations with it have now been placed beyond dispute or foreign interference by treaties and otherwise. Such connection has been assured and confirmed by international understanding officially recognised.

The colony of Lagos, which is the seaboard of Yoruba, was acquired by treaties in August, 1861, and July, 1863. These treaties conveyed to Her Majesty the whole territories of the cedents. Later additions were made at the wish of the native authorities concerned as follows: kingdom of Katanu in 1879, of Appa in 1883, and of Mahin, Jakri, and of Sobo in 1885.

I may first remind you that an important, and indeed extensive, cotton native industry, both in the raw and manufactured form, proceeds along West Africa in the Volof, Mandingo, Tehi, Ewe, and Yoruba countries—that the export of the raw product gives no idea of the industry. But when we remember the millions of cloths turned out annually for their home consump-

tion, of which little is generally known, we must recognise with appreciation the active industry of the natives in this one growth alone, and begin to consider, in these days of keen commercial competition for Africa's markets, whether Lancashire cannot replace this industry, and be thus the means to let loose the native energy confined thereto for more extended agricultural pursuits, of such moment to that continent, and indeed to us.

We find that the imports into the United Kingdom alone, of raw cotton, from British and foreign West Africa, for the five years ended with 1888, were a bagatelle compared with what they might be; when we remember that cotton grows luxuriantly in Tropical Africa—wild in many parts, in most cultivated mainly for its home consumption. The low prices realised since the American war, as also its inferior quality, have kept back the natives from the cultivation of cotton beyond their own requirements.

The Yoruba or Lagos cotton (*Gossypium herbaceum*) is brownish in colour, rough, and short in staple, and consequently does not command the higher prices of the market. The cotton of the West African Portuguese possessions—to wit Angola—is white, silky, and of good length in staple, and, when properly cleaned and prepared, is as valuable as American. To improve our West African export the Government of Lagos has introduced into the country, through its botanic centre, several species of the cotton-yielding genus *Gossypium*, such as Egyptian, Nankin, Garo Hill, Louisiana, Sea Island, Georgia, and New Orleans cottons. The short staple of the Yoruba cotton has told much in the past against its marketable value. The introduction of this special seed should result in the extensive growth in the country of a more valuable commodity, and enable the Negroes of British West Africa to compete on more even and encouraging terms with other cotton-exporting countries.

Against such imports from West Africa we must place the cotton exports thereto, in a manufactured form; and in doing so we must bear in mind that the largest supply of the raw commodity reaches this country from the United States of America, from plantations dependent mainly on the labour of Negroes, whose growth and future utilisation daily become, in their adopted country, a question of considerable political importance. In 1870 the coloured population of the United States which is not affected by immigration, was 4,880,009; by 1880 it had grown to 6,580,793, representing a growing factor, in the game of politics, not to be overlooked. Why cannot Negroes at home or repatriated from the States or Brazil work in their own country? And thus, why cannot we help our colonies and the mother country to be self-supplying and self-supporting?

Manufactured cotton goods exported from this country to West Africa take the form of piece goods, plain and printed,

bleached and unbleached, printed and dyed, twist and yarn, thread, &c., and for the past five years have represented values as follows:

1884	£1,345,593	1887	£995,908
1885	890,099	1888	1,025,680
1886	780,699		

These figures, which should have been more than double, had cotton in its manufactured form been up to its former standard of quality, are made up as follows as regards British and Foreign consumption.

1884 British	£591,884	1886 British.....	£336,869
„ Foreign	753,709	„ Foreign	443,830
1885 British	£388,104	1887 British....	£432,259
„ Foreign	501,995	„ Foreign	563,649
1888 British.....	£485,789		
„ Foreign	539,891		

Here I may explain that in piece goods printed the excess in the Foreign over British consumption may be found to lie. At the same time the former heading is general, and includes not only the foreign possessions, but also other parts not strictly so designated, embracing the British protectorate of the Oil Rivers and the Territories of the Royal Niger Company.

These figures speak for themselves of our cotton monopoly in West Africa. How long such monopoly may continue is another question, and must depend upon ourselves.

The colonial distribution of the British consumption has been—

COLONIES.	1884	1885	1886	1887	1888
	£	£	£	£	£
Lagos	225,112	193,782	138,183	177,128	192,896
Gold Coast	153,429	95,534	99,182	91,499	116,260
Gambia, Sierra Leone ...	213,343	98,788	99,504	163,632	176,633
	£591,884	£388,104	£336,869	£432,259	£485,789

Again, for the same period the consumption of the foreign West African possessions was—

FOREIGN POSSESSIONS.	1884	1885	1886	1887	1888
	£	£	£	£	£
Spanish Possessions—					
Fernando Po, &c.	1,173	1,267	1,433	607	763
French Possessions—					
Goree, Senegal, Gaboon, &c.....	69,676	47,414	30,111	50,759	61,897
Portuguese Possessions—					
Loanda and Angola, &c.	174,205	153,486	187,882	198,204	94,011

The balance, which I subjoin, represented the value of cotton goods exported to West Africa, not particularly designated, which I may again explain includes the German possessions, the British protectorate of the Oil Rivers, and the Territories of the Royal Niger Company—

1884	1885	1886	1887	1888
£508,655 ...	£299,828 ...	£224,404 ...	£314,079 ...	£383,220

In view of its comparative growth and small area, the cotton business of Lagos (and Yoruba), of all our British West African possessions, is the best and most promising.

The raw cotton exported from Yoruba through the colony, during the last thirteen years, and the direction of export, are given in the following table—

COUNTRIES.	1876	1877	1878	1879	1880	1881	1882
Great Britain ...lb.	418,650	531,600	133,950	24,300	6,000	163,950	450,450
Germany „	81,150	12,000	...	...	...	...	...
France „	56,550	55,050	...	...	...	...	...
Total .....lb.	559,350	598,650	133,950	24,300	6,000	163,950	450,450

COUNTRIES.	1883	1884	1885	1886	1887	1888
Great Britain ...lb.	409,746	530,414	278,694	96,980	116,375	203,687
Germany „	1,526	...	156	...	5,360	27,741
France „	162	...	...	...	...	...
Brazil ..... „	...	...	...	...	...	56
Total .....lb.	411,534	530,414	278,850	96,980	121,735	231,484

In connection with the *pagn* currency, I would invite your attention for a short time to the native manufacture, on the river Gambia, of cotton cloth, generally known as *pagn*, which seems anglicised from the French *pagne*, said to have its origin in the Volof *M'pendal*. Women wear each two, *m'pendal* and *seurre*, the former for the lower, the latter for the upper part of the body. In addition to a loin cloth, the men use each one *pagn* (*taray-laye*). Beyond their use for daily wear these *pagns* serve as do our bedclothes.

Among the Traza Moors and others, who inhabit the area north and east of the Senegal river, the *pagn* is often made of the hair of the camel and other beasts. It is woven in primitive indeed looms, often found described in books of travel on West Africa, from country-grown cotton, among the Volofs, Fulahs, Mandingoes, and Sereres. Coverings of grass, woven or plain, or of skins of animals, are used among the Pepels and others occupying the rivers that debouch near the Bissagos Islands.

The importance of this cotton growth, and how great a part as a manufactured article of consumption it may play, should be well weighed by such an industrial centre as Manchester. Near to the West African coast, where European and American thread, yarn, and silk penetrate, are found mixtures of native and foreign manufactures. In addition to their costume requirements, Gambians manufacture a sufficiency for an extensive native currency, known as the local *pagn* currency. This stock represents the output of the spare time of Negresses and their slaves, and is regulated by the fact that their wealth is invested chiefly in slaves and cloths, which go largely to represent their capital. Wearing cloths fetch sometimes as much as £20 each.

A distinction in name, price, and description is recognised locally in the currency of the upper and lower river, chiefly as follows:—

LOWER GAMBIA.		Value recognised.	UPPER GAMBIA.		Value recognised.
Bandy cloth	2s.		Bandy cloth	2s.	
Bassa fanno	6s.		Coorombo	2s.	
M'Bake (Jung Jung) 4s. and	8s.		Fanni Fing.....	4s.	
Nuty Fing.....	6s.		" "	6s.	
"	8s.		Gasay "	6s.	
M'Bake	12s.		Fanni	8s.	
M'Dore	12s.		Fattah	10s.	

LOWER RIVER PAGNS.

Bandy Cloth: An unbleached cloth of cotton, measuring from 5 to 5½ inches in width and a fathom in length. Eight fathoms make a *pagn*, the current value of which, on the river as well as at Bathurst, is at the rate of 3d. a fathom or 2s. a *pagn*.

Bassa Fanno: A bandy cloth *pagn* of the usual size, stitched together and dipped in weak indigo dye preparation. It is of the same value as the bandy cloth.

M'Bake: The 4s. M'Bake is a *pagn* of light blue colour.

Jung Jung or Spotted Cloth: The same as the M'Bake as to colour, but spotted, which is effected by beeswax or some vegetable preparation. The word *jung jung* means spotted.

Nuty Fing 6s., *Nuty Fing* 8s. : Single blue pagns, but distinguishable by the degree of colouring, the latter being a shade darker than the other.

M'Bake 8s. : Is of the same make and dye as the 4s. *M'Bake*. This is, however, of larger size, measuring generally about 9 feet in length, and from 4 to 4½ feet in width. Generally made in pairs and used exclusively by men.

M'Dore : The same as 8s. *M'Bake*, but distinguished by coloured stripes of white and blue in the centre. This pagn varies in price from 12s. to 24s. a pair, according to the dye, the degree of colouring enhancing the value. Another distinction of these pagns, which are usually sold in pairs, is that one pagn is generally made wider than the other. The wider is used for wrapping round the lower part of the body, and the other for wrapping about the upper part.

UPPER RIVER PAGNS.

Bandy Cloth : Manufactured in the same way as the Lower River bandy cloth, already described, but generally the Upper River bandy cloth is narrower and coarser. Bandy cloths are the small change in the currency of the river. In fathom lengths at 3d. each, they are used in the same way as small silver in more favoured parts.

Coorombo : This is an eight fathoms bandy cloth pagn, stitched together, but not dyed. Value 2s.

Fanni Fing, 4s., 6s., 8s. : It is a blue pagn, the price varying according to the degree of dye.

Gasay Fing : It is a light blue pagn, manufactured of native white and dyed blue cotton yarn, mixed together previous to undergoing the usual process of dyeing.

Fattah : It is a pagn of light blue, mid blue, and dark blue colours on one side, and altogether dark blue on the other side. It has coloured stripes straight along its length. This is effected by stitching seams all over the pagn previous to dyeing, the seamed parts presenting a striped light colouring after the dyeing process is complete.

Cousaba and Desir : There are other pagns of the Upper River not included in the above list. The *cousaba*, used exclusively by females, is of the deepest blue colour, approaching to black, glazed with reddish tints. The value is 12s. The other, *desir*, is also a female pagn of deep blue colour, but with long fringes at both ends, and varying in price from 12s. to 24s.

The weavers are generally known among Mandingoes as *dareelah*, and among Volofs as *rabar-kat*. Their chief industry is weaving. When not so employed, many become for a time *gryots* or wandering minstrels.

The currency pagns change hands as, or in exchange for, cash or home goods, and are received from time to time as such by merchants and traders. The age of the article does not, as a rule, affect its current value. I was indeed surprised in 1885 to learn at Bathurst that there were in the mercantile houses currency pagns to the value of over £60,000. Fancy the anxiety of the possessors of such old clothes, and the labour and expense of keeping them free from damp and moth. True, such an exceptionally large deposit was due to failures of the crop, represented by the one staple, the ground nut, from excess of rain or drought, and somewhat to the guerilla warfare that prevailed.

Pagns are sold by length and not by weight. They are unsized, substantial, and of great durability—conditions that should weigh with home manufacturers, if they aim at replacing generally this native industry, and thus setting free for other agricultural work the thousands of hands employed now as weavers.

In the interest of the native farmer—for Lagos oil, as you will remember, used always to hold the first place in the market for purity and value—of the manufacturer, of conscientious traders, agents, and merchants, to guard against a further continuance of fraud upon customers, and to protect honest commerce, at the beginning of the present year it was considered by the Legislature of the Colony of Lagos that the time had arrived for the enactment of legal measures, more searching than had hitherto existed, for the repression of the rapidly-increasing practice of adulterating produce. As examples of these fraudulent practices, I may mention the adulteration of palm oil with agidi (ground Indian corn), causing a considerable increase in bulk and deterioration in quality; the mixture of cotton seeds with cotton, to increase the weight and lessen the labour of production; and the addition of palm-nut shells to palm kernels, for similar reasons; as well as the open and scandalous practice of soaking the kernels before bringing them to sale, thereby causing a great temporary addition to the weight at the expense of an ultimate loss of 15 per cent of their value in Europe. To such an extent had this unsatisfactory state of affairs increased that the credit of Lagos as a source of valuable produce was seriously affected, and it was found necessary to pass a law, entitled “An Ordinance to Prevent the Adulteration of Produce.”

This ordinance seems to act well and to be in a fair way to put an end to the evil against which it was directed. That the necessity for it should have arisen shows the difficulty of preventing the ruin of native commerce by the ill-directed greed of those most deeply interested. At the same time, I cannot but think that the system which has hitherto existed on the part of ourselves of supplying goods to the traders, or middle-

men, of the coast, prepared in a manner calculated to deceive the producer of oil, kernels, and cotton in the interior, has had much to do with the origin of these frauds, and I am emboldened to mention this fact in a meeting composed, perhaps, in part, of the manufacturers and merchants of Lancashire, by the consideration of the ruinous results to our cotton trade in other parts of the world which have arisen from this practice. In Central America—I have it on the authority of an eye-witness—the Indian asks for, pays for, and sees that he gets, American drills and bafts, leaving to the Negro mahogany cutters, who are supplied on the truck system, and have therefore little or no option, the cheaper and more pretentious English goods. The reason of this is that the American goods are strong and free from size. I believe that I am not wrong in saying that a similar result has been observed in China, where we have been obliged to imitate the American cloths in order to compete with them. If I am wrong in this, you will doubtless be able to correct me. In East Africa, Thomson, in his work on the “Central Lakes of Africa,” asserts that the natives of Zanzibar buy mainly “Merikani” cloth, leaving the inferior English goods to the Arabs, who trade with the interior, and whose method of persuading the more innocent native to accept such goods as they may choose to offer is well known. My fear is that this, which is one of the apparently inevitable results of a business carried on through a number of native middlemen, each of whom has to make his profit out of the goods which pass through his hands, and the last of whom is often an Arab or a native king—distributing the goods with more or less of compulsion—should affect to a really serious extent the sale of our goods in the markets of the interior of Africa. The result of this would be that the African would cease to buy European goods, and would go more actively to manufacture his own grass and cotton cloths, which even now are in great and increasing demand among the natives of the coast, in consequence of the greater liberty of purchase enjoyed owing to the comparatively recent introduction of cash payments for produce at the ports and less distant markets. Having freedom of choice, the native is rapidly reverting to the use of his own strong country cloths. We cannot blame him for it. Country cloths are now exposed for sale in every market-place beside the European goods, and are not unlikely in time to beat them out of the markets near the coast.

The above facts will also go far to explain why, in self-defence, adulteration has been resorted to by the native dealer who attends the produce markets of the interior—for, mark you, the interior natives do not resort to such practices. They would not dare to. Only men do it who have been in contact with the coast civilisation. The distrust in which they

are now held by the producer is such that they are at many markets obliged to pay for their produce in English silver currency, with which the native buys such goods as suit him best, and, for preference, native goods. Within measurable distance of the coast distributing centres, the system of direct barter, which used to rule in Africa, will soon no longer exist.

As Ife, in Yoruba, is supposed by the natives to have been the cradle of the human race, white and black, so it is generally believed in the country that we English want palm oil; that we cannot do without palm oil; that, in fact, there is nothing else but palm oil. Its rivals in the form of petroleum, tallow, cottonseed, linseed, and ground nuts, are comparatively unknown to them. They cannot appreciate the variations of supply and demand, and, consequently, of the European market. They cannot understand how it is that some years back they got in goods the equivalent of £52 per ton for their oil, while at present they do not get half so much. They believe there is something wrong somewhere, and they expect and demand the same number of pieces of cloth which they did when the price was what I have mentioned. Instead of educating the native up to a sense of appreciation of the variation of European tariffs, he has been deceived by quality, and short lengths, strengths, weights, and measures. I have already shown that we cannot urge in our defence that the native gets what he asks for. The native who buys such goods takes good care to make no use of them himself. He buys them to pass on to the more ignorant producer of oil and kernels, who does not want them, but has to take what he can get, as he cannot both make oil and manufacture cloth.

Take cotton goods, for example. The trade used to deal in pieces of so many yards made up of so many yard-folds. The native goes by weight and folds. What does he know of our standard?—that 36 inches go to a yard? Well, there was introduced, and still continues, the practice of importing finished pieces made up into the same number of folds as before, but having each fold some inches short of 36. Such pieces seem to be chiefly composed of size, on a slender basis of cotton, and can, like the proverbial umbrella, only be used in sunshiny weather, in a country which has a rainy season extending over five or six months, with an average total rainfall approaching 100 inches. As for washing, such goods, when washed, would make in Yoruba excellent, though fragile, sieves, but are quite useless for the purpose of covering the human body.

I am told that the two finishes of the trade are known as the farina finish and the salt finish, chalk and starch forming the basis in each, and that the former is applied to goods for West Africa. On one occasion I inspected at Government House, Lagos, two pieces of white manufactured cotton, each of 24 yards,

made up in 30 folds. The lighter one, which weighed five pounds, had cost, landed at Lagos, 6s. 10d.; the heavier one, of eleven pounds, cost 6s. 3d. The former, though of superior quality, realised only 7s. 3d.; the latter, though resembling brittle paper more than cotton, and of much inferior quality, fetched 9s. 6d. This will somewhat explain how the standard has gone down since 1884 to meet local expectations, which, it must be remembered, are merely those of the coast middlemen who get rid of such rubbish at the interior markets, where it is palmed off on the natives *volentes volentes*.

The following data will give you some particulars of the length reductions and depreciation in value, of the articles of the drygoods trade since 1883:—

Articles.	Length, 1882-4.	Selling Price.	Length, 1888.	Selling Price.
Grey bafts.....	28 yards	8/-	24 to 25 yards	3/6 to 4/-
Satteens	"	20/-	"	9/- to 10/-
Madras	8 lks.	8/- to 9/-	"	4/- to 4/6
Croydons	28 yards	7/6	24 to 25 yards	3/6 to 4/-
Blue regattas	"	10/-	"	4/6 to 5/-
Fancy drills	"	9/-	"	4/6 to 5/-
Fancy ticks	"	8/-	"	4/- to 4/6
Waste check.....	"	10/-	"	6/-
Corded bafts.....	"	14/-	"	5/6 to 6/-
White brilliant.....	"	16/-	"	6/6 to 7/-
Red satteens.....	"	12/-	"	5/6 to 6/-
Scarlet flannel	25 yards	20/-	23 yards	11/-
Patent velvet	"	4/- per yard	"	2/3 to 2/6
Fancy prints.....	28 yards	5/-	10 yards	2/6 to 3/-
Striped domestic	"	9/-	24 yards	4/6 to 5/-
White pique brocades...	"	25/-	"	9/- to 10/-
White brocades	"	20/-	"	6/6 to 7/-

May I be excused if I express a hope that the statement of a record of so disastrous a policy will lead to its abandonment by those whose interests are concerned, especially as the "Adulteration of Produce Ordinance" bids fair to put a stop to similar measures on the part of the natives?

As one strongly interested in Yoruba, I cannot but express myself strongly on a subject of such vital importance to the trade of that country, as well as to the British manufacturer.

I may further mention that retail hucksters have felt obliged to continue the deception by the use of so-called yard measures of so many inches less than the standard measure—32 inches being the now accepted standard yard in many of the native markets. From the above facts, the necessity for the extension to the colony—which has been done—of the Merchandise Marks Act becomes manifest, as also of a Weights and Measures Ordinance—enactments which, I trust, will prove

sufficient to balance evenly the scale as regards the protection of honest importers and consumers.

We know that the Niger has been, and continues to be, the high road of Mohammedanism from North and East Africa. Its active pioneers and advance guard on Yoruba have been the Peuls or Fulanis, who have in the past overrun and subjected most of the country on the middle stream, and have so far succeeded in considerably contracting the area of Yorubaland, which, though divided tribally and dialectically, has a common national tongue and a recognised feudal head in the person of the Alafin of Oyo, who is on the best of terms with the government of Lagos—as are, indeed, all the Yoruba native states.

This is important information for the cotton industry. In Sir Francis Burton's "Wanderings in West Africa," written in 1863, he gave the Mohammedan population of Lagos as 700 to 800. In 1881 it reached 12,023, and it may be said now to be about 15,000. Islamism grows apace in West Africa, and with it a demand for Manchester cotton; for, be it remembered, each Mohammedan, or person who dresses after the Mohammedan fashion (and there are thousands of such natives) has two or three complete costumes each year, and one costume takes from 40 to 50 yards of croydon, where cloth of native manufacture is not used.

In Yoruba the dress of an ordinary male Mohammedan consists of trousers, vest (*togo*), gown (*agbada*), cap and turban; and takes from 45 to 50 yards per suit, of which he is said to have two or three each year. The lady's costume consists of a cloth (*kijipa*), cover cloth, head tie, and *ashibon* covering, and takes about 33 yards. With an allowance of three suits in each case per annum, of croydon material, we should have a consumption of 250 yards for a male and female couple, or 125 yards per person, which at 4s. per 25 yards would equal £1 a head. Now the population of Yoruba is given at 3,000,000, and the trade routes *viâ* Busah and Rabba connect that people with the Mohammedan states flanking the Middle and Upper Niger, and therefore the cotton demand is trivial compared with what it may become.

I remember conveniently that I noticed, in the Church Mission Atlas, that there were in Africa 50,416,000 Mohammedans, and 144,472,900 pagans, so you must acknowledge the enormity of the work Lancashire will have, if we succeed only in securing a continuance of our cotton export monopoly.

With Lagos the trade routes through Yoruba to the Niger are: (1) Abeokouta, up the Ogun River, Iseyin, through the Borgu or Barba country to Busah or Busang on the Niger. (2) Abeokouta, Oyo, Ogbomaso, Ilorin, and Rabba, on the Niger. (3) Ikorodu or Ode Ketu (in Jebu), Ode, Oru, Ibadan, Ilorin, and Rabba. (4) Artijere, Itebu, Ondo, Ilesha, Ilorin, and

Rabba. (5) Benin, through the countries of the confederation known as Ekitiparapo, Ilorin, Rabba.

As I have on more than one occasion explained elsewhere, these routes vary in length from 200 to 300 miles, are long and well-established, and connect populous centres, which any railway system contemplated should do.

An occasion such as this allows me to inform you that what is commonly known as one (*Eriodendron anfractuosum*) of the silk cotton trees is found all over West Tropical Africa, but its cotton yield is put to no export use. Compare the growing consumption of this commodity under the name of *kapok* in Holland, Belgium, and Germany, where it is imported from the East, and used for upholstery purposes, fetching, unprepared, up to 30s. per cwt., and prepared up to £5. Its import into Holland alone in 1877 was 510,230lb. It is now over a million. *Kapok* introduction into this country may deserve commercial attention.

Now, in view of the recent general emancipation of the slaves of the Empire of Brazil, which was most enthusiastically celebrated in Lagos in September and October, 1888, and of the well-known desire on the part of many of them to follow in the steps of their fellow-countrymen who have returned to their fatherland in West Africa, and especially to the country of the Yorubas, the memory of which is still fresh in the hearts and minds of many of them, it has occurred to me that a clear statement of the extent and nature of the advantages to be derived from a commercial enterprise founded upon the necessity which exists for their continued transport to West Africa may serve as a sufficient inducement for those who are interested in the advancement of the Negro, and through him of tropical Africa, to attempt a commercial enterprise in the form of the establishment of steam communication between Lagos and the Brazilian coast.

Local experience of the industry, intelligence, and character of such settlers in the past makes it clear that the general prosperity of the country would be materially increased by a timely encouragement of this noble work of repatriation. An extended influx of skilled agriculturists, craftsmen, and mechanics could not fail to improve the general prospects of the land of the Yorubas and of West Africa generally. Their past sufferings in distant lands cannot but make them eager to avail themselves of the opportunity of returning to the home of their fathers in numbers proportionate to their own means, to the help given them and to the means of transport available. From the intelligent competition of those who have already repatriated the peoples of West Africa have everything to hope and nothing to fear.

According to the census returns of 1872, Brazil had then a

population of 9,700,187, of which more than one-seventh, viz., 1,476,567, were slaves. The Brazilian Legislature, by its Act of the 12th May, 1888, has done justice to Africa and restored to their natural and rightful freedom nearly 1,000,000 Negroes, and has thus killed slavery in the New World.

And who are those persons who have at last received their natural rights, and what was their servile work? They are Africans—thousands of them Yorubas—many of whom have retained or learned their own language, who themselves, or their parents before them, were cruelly robbed in the past from the west side of the African continent to take, on the plantations of the New World, the place, as slaves, of the aborigines of the country, whose almost complete extermination is already a matter of history.

What has been the result of their labour? Why, that to-day, notwithstanding her comparatively small population and correspondingly small cultivated area, Brazil is rich in the export of coffee, sugar, cotton, tobacco, maize, and other commercial commodities, especially of the three first named.

When we look to Brazil, the agricultural and commercial development of which has been the work of trained Negroes, what do we find? That there was exported into the United Kingdom in—

	1887.		1888
	£		£
Rubber.....	1,605,115	.....	1,604,108
Cocoa	49,738	.....	27,631
Coffee	1,096,395	.....	491,622
Cotton, raw.....	1,544,616	.....	1,103,534
Cotton, seeds	76,572	.....	93,207

All these products—I may except cocoa, which thrives, however, in West Africa, as if it were indigenous—have their home in West Africa. Their development is a problem of the present and future.

In addition to what we have from time to time read, we know by results that a strong desire of repatriation has ever possessed African slaves not born in Brazil. Many associations have been there formed for years past for the purchase of the freedom of African slaves and for their restoration to their native country. Although they began to repatriate first about 1840, they did not, in view of the notoriety of Lagos, Whydah, and the mouths of the Niger as slave ports, do so in any number before the cession to the British Crown of Lagos in 1862. That Government wisely set apart for them a district in the island of Lagos, and many of the streets in Lagos, viz., Pedro Street, Martin Street, Bamgboshe Street, &c., have been named after them. Of repatriates from Brazil there were 1,237 in Lagos in 1871, and about 2,732 in 1881. From April, 1883, when

a proper record began to be kept in the Customs, there had arrived, at the end of 1888, 489, making a total of 3,221. I would estimate that there are in Yoruba now about 5,000 repatriates. These repatriates are an orderly, industrious, settled, and highly respectable portion of the community, and present generally praiseworthy examples as citizens. To West Africa—we are here especially interested in Yorubaland, the prosperity of which, as of other parts of the world that have been cursed in the past by slavery, must depend on vested interests in the soil, to be brought about by the creation of peasant proprietorships—the development of agricultural interests is of the greatest moment. In furtherance of such, the repatriation from Brazil of mechanics and trained cultivators of the soil is specially desirable, and should receive all encouragement. Again, such repatriates have represented, and will, admirable centres for the diffusion among their less developed countrymen, of their enlightenment and cultivation.

Apart from considerations of the substantial advantages to be derived from an increased immigration of intelligent settlers into our colonies and the neighbouring kingdoms, I have been led by a careful study of the details of the intercontinental trade, between Brazil and Lagos during the past six years, ended with 1887, to the conclusion that there is every prospect of a successful and profitable issue to an enterprising attempt to encourage, by steam communication and moderate rates of freights and fares, the repatriation of the lately liberated Africans. Of their eagerness to return to the homes of their ancestors there is sufficient evidence from more than one authority. The difficulties at present placed in their way by an infrequent, dilatory, and inconvenient means of transport alone prevent them from leaving in large numbers a land in which they are strangers and unwilling colonists.

The trade connection is, indeed, encouraging, when we bear in mind the slow, uncertain, and insufficient means of communication that has obtained and obtains.

During the six years ending on the 31st of December, 1887, 28 sailing vessels entered the port of Lagos from Brazil, and 27 cleared for Brazilian ports, giving an annual average of $4\frac{2}{3}$ entries and $4\frac{1}{2}$ clearances in connection with this trade. The vessels which arrived from Brazil were of a total tonnage of 4,728 tons, and earned, it is estimated, the sum of £21,508 for freights and £2,742 for fares, making a total of £24,250, or a yearly average of £4,041 gross earnings on the outward voyage. The 27 vessels which cleared for Brazil were of a total tonnage of 4,520 tons, and earned, it is estimated, the sum of £6,802 for freights and £1,716 for fares, making a total of £8,518, or a yearly average of £1,419 gross earnings on the homeward voyage.

The tonnage here given represents registered capacity and

freight, has been calculated at so much a package on the current tariff of sailing vessels, as given hereunder:—

FROM BRAZIL.

Rum, per pipe of 100 gallons.....	30s.
Tobacco, per roll of 25 lb.	4s.
Tobacco, per band of 3 rolls, or 75 lb.	10s.
Beef, per bag of 120 lb.	8s.
Coffee, per bag of 50 lb.	8s.
Cases (of various sizes)	3s. & 6s.

TO BRAZIL.

Palm oil, per puncheon of 200 gallons	28s.
Barrels (any size)	10s.
Kegs (any size)	3s.
Calabashes, in bundles of 100	6s.
Kolah nuts, per 1,000	2s. 3d.
Cloths, of country manufacture, each	1d.

The number of passengers from Brazil to Lagos reached, for the same period, and by the same opportunities, a total of 457, or an average of 76 per annum, and from Lagos to Brazil, 286, or an average of 47 per annum. The total number of passengers carried both ways was 743, or an annual average of 123, and the amount paid by them for fares amounted to £4,458, or an annual average of £743. The total amount received for freights was £28,310, or £4,718½ per annum. The gross total receipts for freights and fares amounted to £32,768, or an annual average of £5,461½.

It is clear from the above-quoted figures that the germs of a considerable trade along this route already exist, and require only favourable circumstances to develop in a satisfactory manner. As has been already pointed out, it may be reasonably inferred that the amount to be derived from fares would increase to an unknown extent with the advent of increased facilities for transport. Indeed, it seems not unreasonable to suppose that the sum to be realised from passengers' fares would be multiplied many times, were steam communication to be established. Again, we must not lose sight of the probable supply of free Negro labour to Brazil under contracts of service. A considerable increase may be anticipated by the substitution of steam for the sailing service.

Upon examination of the nature of the trade carried on by the sailing vessels at present employed on this route, it appears more than likely that several of the articles dealt in would become considerable factors of commerce, if carried by steamers. The demand for kolah nuts, for example, is reported to be at all times considerable in Brazil, but in view of the slowness of the passage, as at present made, the duration being any time between thirty and eighty days, and the difficulty of keeping them in marketable condition, the value has at no time during

the past six years exceeded £3,563, while in 1887 it sank as low as £304. Shea butter also, though exported to the value of £161 in 1883, sank in 1887 to £29. The use of African native cloths has grown to a fashion in Brazil. Among the imports from Brazil, the most important seem to be rum, cigars, and tobacco. It is unnecessary to say that the exceptionally depressed state of trade prevailing in 1887 affected, to a marked extent, this, as all the branches of commerce upon which the colony depended. Indeed, irregularity of communication has in the past given this trade a peculiarly unstable character. Placed on a firm basis, however, there would seem to be excellent prospects of a rapid development in the imports above mentioned, especially when it is taken into consideration that the market for imports from Brazil is already established in the colony of Lagos.

The monthly expenditure on a pioneer steamer of, say, for purposes of calculation, 150 tons burden, should not exceed £350, including wages, victualling, coal, insurance and depreciation. The prime cost of such a vessel is best known to those who are engaged in similar enterprises, but putting it at £5,000, and the working expenses at £4,200 per annum, an annual balance, supposing the trade at present existing to be monopolised, as in all probability it would be by such an enterprise, would be £1,261, in return for the capital invested, giving a rate of interest of over 25 per cent upon the original outlay.

These facts show that it is worth while to consider seriously the advisability of embarking upon this enterprise, and I take accordingly advantage of this favourable opportunity to publish the facts I put before you, which bear upon the subject, sincerely trusting that so important an opening for British trade and shipping will not be neglected.

The estimated values of imports and exports to Brazil were, for the period touched upon, as follows:—

Year.	Imports from £	Exports to £
1882	16,948	16,177
1883	16,455	6,083
1884	16,925	10,401
1885	18,983	10,764
1886	17,761	6,455
1887	16,738	3,930
	<hr/> £103,810	<hr/> £53,810

The Tchi country has been from time immemorial notorious for its gold yield; its seaboard has been appropriately called the Gold Coast; its auriferous wealth has been placed beyond dispute; the known area of the metal is small compared with what it will become. Foreign mining enterprises that have of comparatively recent years been undertaken in the country have not met with the return that was expected. I may repeat

here what I have always maintained, that by native agency alone can the agricultural and mineral wealth of the country be developed. For some time foreign supervision will be necessary; but even for such time skilled labour, capable of withstanding the climate, must be had. Hundreds of Negro miners now in Brazil, skilled and able men, who have been trained under Cornishmen and others, offer. I have had it on good authority that since the general emancipation last year of the slaves in that empire, the Negro miners do not care to pursue their old occupations. Here is another inducement for the establishment of steam communication between Brazil and West Africa.

For the opening up of tropical Africa the general introduction of Chinamen continues, I notice, to be advocated by some ignorant of the lesson of experience and regardless of all respect for aboriginal rights. I recently satisfied myself in Paris that the experiment has met with so much success in Senegambia as to induce the French Government to decide that it is not to be repeated.

It must be acknowledged that the value of our possessions, in their work of development, must depend on their trade, which means an open and settled interior. Cut them off from the interior, and they are practically blocked and cramped as regards progress, and are occupied in struggling to meet the bare cost of their administration. Connect them with the interior by a policy based on consideration, conciliation, agriculture, and the repatriation of Negroes from the western hemisphere, and their future will be indeed great and far-reaching.

By native agency alone can tropical Africa be gradually and definitely developed on any permanent basis, and for what has been so far done in Gambia, Sierra Leone, Liberia, and the *ex* Slave Coast, the credit must be largely given to the so-called creoles, but more aptly called repatriates or their enlightened descendants. For the development of the Congo and East Africa the question of the introduction of repatriates is now being wisely and justly considered.

It has been questioned why West Africa has not made more progress in the march of civilisation; and we naturally ask ourselves what have been the causes that have acted against the development that was hoped for. As regards Yoruba, I would just make mention of the evil and emasculating consequences of slavery, in its export and domestic forms. In the words of Sir Thomas Fowell Buxton, when he advocated the total emancipation of Negroes in our colonies, it was slavery that debarred them from acquiring industries; it was slavery which prevented them from exercising the virtues of foresight and prudence; it was slavery which left them nothing to care for; it was slavery that took away from them all the incentives to industrious labour, and debarred them from all the ties of social

intercourse. When we remember the small percentage of people that represents owners, we have to acknowledge that these causes still oppose development. Time alone will rehabilitate the Negro in his manliness.

The Government has never lost sight of the original objects of the acceptance of the cession of Lagos, viz., to assist, defend, and protect the inhabitants to put an end to the slave trade, not only within the area ceded, but in the neighbouring countries, and to prevent intertribal wars.

So far as the colony and protectorate of Lagos are concerned, this policy has been carried out; but the features of the surrounding independent countries have not altered as much as we could have desired. The removal of an institution such as domestic slavery, that has become so interwoven with the society and commerce of those countries, is difficult; but it is undeniable that the congestion has been relieved, and that such relief unmistakably proceeds. That slavery is not tolerated within Her Majesty's dominions is widely known throughout Yorubaland, and that England abolished slavery in 1834 in her colonies, at very great cost to the British taxpayer, is gratefully acknowledged in the country by thinking people.

The reckless and sometimes immoral systems of credit that prevailed and the occasional gullibility of the British merchant or manufacturer have helped to stop the way. Further obstacles that have blocked progress are the altered relationship between owner and former slave, the independence of the latter when compared with his former grovelling position, doubt of result or use of independence secured with abolition, doubt in minds of native authorities of consequence of any action they might initiate, non-existence of free labour markets, short-sighted policy, from whatever cause, of keeping closed the rivers that intersect the country, and intertribal differences, jealousies, and feuds. The removal of such blocks has been and is the aim of the Government. They cause from time to time much commercial interruption and general anxiety. They are, however, gradually disappearing. Foremost have also been the Dahomian raids, which, as regards the southern half or more of Yoruba, have ceased since 1875, in consequence of the then determined and salutary action of the Government.

In retribution for the past, and to safeguard the output and spread of our own trade in the future—for it must be acknowledged that Africa alone remains, or is likely to, a free market of promising expansion for our manufactures—the Negro must be educated industriously, and otherwise, through himself, but with the generous help of Europe and America. The repatriation of educated and industrious Negroes from the New World is the grand problem of future Africa, and a promising opening for such on an assisted scale offers both in the United

States of America and in Brazil. Such Negroes are required for the establishment of civilising centres, for the spread of the industries they have learnt in the western hemisphere; they are to be the educators of their less enlightened fellow-countrymen; they should be the true and effective crusaders in and amongst their own fellow-countrymen against slavery. They have the advantage of homogeneity, and enjoy a common language. Their weapons must be their love of country, their enlightenment, and their industries.

Again, it must be remembered that "come and take" has been the motto and creed of the European commercial men who do business with West Africa. They represent generally absentee landlords, and are represented by European agents under contracts of service for short periods, whose aim and object is naturally to make as much as they can for their employers and themselves within as short a space of time as they can. All profits are taken out of the country. Nothing therefrom is locally spent for its benefit. In a land where the cowry shell is the recognised general currency, these gentlemen represent the convenient medium for the payment in money of the low taxes that are imposed by the Government, and fall on the people of Yoruba and little on the inhabitants of Lagos colony, a fact sometimes overlooked.

Lastly, it is acknowledged that, in primitive countries such as are embraced within and adjoin our West African colonies, it is the duty of the Government to initiate, as regards advertising, the capabilities of the country represented by its products. The people are industrious in their own fashion, and, although their present wants are small, they are ready to follow examples set, and to develop industries once they are informed thereon, and learn to appreciate their value. We want new staples of trade and larger areas of demand for our wares. Such can only be obtained by developing the resources of the country and by introducing alien botanical products suitable for growth in West Africa, and of marketable value. Our eggs-in-one-basket-policy must be discontinued. Towards such an end a botanic centre has been established in the Colony of Lagos for the education of the native in the direction of developing the resources of his own country, and to serve as a distributing centre of economic plants, for on the agricultural development of the country must the future of tropical Africa for many years depend.

Towards the eradication of domestic and other slavery, and in the restoration to Africans in Africa of that liberty for which they themselves have so long struggled and at last gained, the *emancipados* of Brazil and the Negroes in the United States of America can and will represent powerful contingents. The commercial prosperity which they have given

to Brazil and the United States let them help to have extended to Africa, by the development there, with their free labour, of the same industries that brought it about; and as the centre of new industries let them look upon the Lagos botanic centre, where they will also find nursed for them coffees, cocoas, cottons, and other useful economic plants.

I have perhaps said enough on the feeling of repatriation among the Negroes of Brazil. In proof of the patriotism of the Negroes of the United States I cannot do better than read a letter that has been placed in my hands by that dear old gentleman, the Right Rev. Dr. Crowther, Bishop of the Niger:—

Northfield, Minnesota, U.S. of America,

Sept. 11th, 1889.

RIGHT REV. AND DEAR SIR,—There is forming here a company of people, earnest and industrious, with a view of going out as a colony to Africa. They have not yet determined to what part of that great continent they will go, only that they have resolved to settle somewhere near the West Coast. It is with a view to gathering information that I make bold to write this to you. Would you advise us to go to the region of the Niger? and if so, is there any special section where you could and would advise as a settlement? There will probably be about one hundred families in all, representing the general crafts and trades. It is the desire of these to settle in some region somewhat removed from the sea, yet near enough to carry on commerce with Europe and this country. Such region must have water for man and beast, pasture and woodland, located sufficiently high above the sea level to escape malaria. In such a country we wish to settle permanently. Do you know of any such to which you could advise us to go? And if you do know of it, what would be the articles which could be raised there? What would be the prevailing vegetation? Would there be wood there for building purposes? About what is the average temperature? For the purposes of cultivation what would you advise us to bring—what grain, what fruits, what implements? Would it be best to import horses or cattle? Under what government should we be? Should we be best protected as American citizens?

I beg your pardon for sending this long letter, but I know not to whom else to write, and we shall feel very thankful to you for any information which you may give us.

I am a priest of the Church, under good Bishop Whipple, and these people will be nearly all Church people. Whatever your letter may bring us, we shall feel deeply grateful to you for it all.—Your servant in Christ,

GEO. H. MUELLER.

Right Rev Bishop S. A. Crowther, D.D., Bishop of the Niger.

To adapt to Yoruba the memorable words of one of India's best Governor-Generals (the late Earl Mayo), when he expressed his belief in the advantage of Governmental example in the direction of the establishment of model farms, I will conclude by saying that for generations to come the progress of tropical Africa in wealth and civilisation must be directly dependent on her progress in agriculture. Agricultural products must long continue the most important part of her exports, and the future development of Africa's commerce will mainly depend upon improvement in the quantity and quality of existing agricultural staples and of the exports from this country, and on the introduction of new products, which shall serve as materials for manufacture and for use in industrial arts.

The Proposed Congo Railway.—The survey for the proposed railway between Vivi and Stanley Pool, along a route to the south of the river, is now completed, and the report of M. Cambier, as given in the "Mouvement Géographique," adds considerably to our knowledge of the topography of the region which has been thus surveyed. While the old caravan route runs approximately parallel to the Congo, and crosses its affluents near their mouths, the proposed railway route either crosses the rivers near their sources or keeps on the divides between these river-systems. Thus the deep gullies and valleys are avoided, gentle slopes prevailing on the plateau. Considerable difficulty was encountered in climbing the high land, which falls abruptly to the river. It was found impossible to ascend it by one of the tributaries of the Congo coming from the south, as they run through inaccessible gorges. But a depression was found a short distance below Matadi, from which point the proposed route ascends the highland. The road will cross the tributary Mpozo on a bridge, and after having avoided the plateau of Palabala by a detour to the south, it takes an E.N.E. direction, until the river Lukunga is met. It seemed at first as if some difficulties would be encountered here, but the reconnaissances of the engineers showed that the valley of the river takes a north-easterly turn, and thus they were enabled to follow its left bank without crossing it. It is stated that no serious obstacles are encountered between the bend of the Lukunga and the Inkissi, the country consisting of hills intersected by small ravines. Between the proposed route and the Congo rises the plateau of Ngombi to an altitude of 1,600 feet. This part of the country is intersected by deep valleys. The Inkissi, at the point where the route crosses it is about 350 feet wide. East of the Inkissi the population becomes less numerous, and the country is more elevated and sandy. The heights of the hills are clad with forests, and deep ravines intersect the slopes of the plateaux. Approaching Stanley Pool, the line has to pass over hills about 300 feet above the Congo, which are traversed through narrow and tortuous valleys. Later surveys show that a better line may be found further west. In the meantime the establishment of a regular connection with the Upper Congo by means of oxen is contemplated, the Sandford Exploring Expedition and the Belgian Company being united for the purpose of establishing regular commerce with the Congo basin.—*Proceedings of the Royal Geographical Society, February, 1889.*

M. Trivier's Proposed Examination of the Lukuga.—M. Trivier, a French explorer, left some time ago for Brazzaville and the Congo. He intends to proceed to Nyangwé for the purpose of carefully examining the west shore of Lake Tanganyika, and exploring the upper course of the Luabala, and other feeders of the Congo. M. Trivier does not believe that the Lukuga is the real outlet of Lake Tanganyika, and proposes, therefore, carefully to explore its source, and also to discover if there is no other outlet. M. Trivier believes that if the observations of Mr. Stanley are correct, the Lukuga would have ceased to flow long ago, seeing that the level of the lake is rapidly falling. It may be stated, however, that according to Captain Hore's observations, the bed of the Lukuga is a deep layer of mud which is being washed away, and that it will discharge the waters of the lake until the rock is reached.—*Proceedings of the Royal Geographical Society, February, 1889.*

ON THE MELODIES OF THE VOLOF, MANDINGO, EWE, YORUBA, AND HOUSSA PEOPLE OF WEST AFRICA.

BY HIS EXCELLENCY GOVERNOR MOLONEY, C.M.G., OF LAGOS.

[Addressed to the members at 7-30 p.m., on Friday, Nov. 15th, 1889, the Rev. S. A. STEINTHAL in the Chair.]

I HAVE been somewhat exercised in mind to explain to myself why I appear before you this evening and am thus privileged to address so distinguished an audience. Fortunately I remember that my attention was called to some encouraging and generous references, that appeared in September last in the public press, to a musical paper I was allowed to give to the British Association that met at Newcastle this year. It was at the time suggested that I should be induced to repeat my musical entertainment under the name of the "Moloney Minstrels." It is scarcely necessary for me to explain that I alone personify the body this evening, and am as to my complexion *au naturel*, although you may reasonably wonder why after all the years I have succeeded in surviving the West African climate, I do not present a darker appearance.

I can only presume that, in view of Lancashire's desire to be on the closest and best terms with the Negro, this great industrial centre thinks it cannot do better than encourage the musical talent of his country, and thereby aboriginal fashion and variations of costumes, and thus have an eye to business, and furnish an increased demand for cotton goods. Again I recall that this afternoon I ventured to explain, to a critical but kind audience, how the whites and blacks, short-sightedly, vie to outdo each other in the commercial game of barter. To bring them into more harmonious and sensible relationship, I thought I could not do better than soothe you in such a direction by some of their melodies.

With your permission I will distribute them geographically under (1) Gambia, (2) Ewe or Dahomey, (3) Yoruba, and (4) Houssa. Under the first division we shall hear short snatches of Bambarra, Mandingo and Volof airs, which are both vocally and instrumentally rendered in those countries.

Under division (2) we have the more stirring airs of the notorious Dahomians, influenced doubtless by the predominant part taken in the country by the ladies, who are said to far exceed the men in numbers. This sad sexual disproportion is not confined, I fear, to Dahomey. You have doubtless heard of the Dahomian Guards, composed of so-called Amazons, or women soldiers, of whom it is said there are 5,000 to 6,000.

They are the mainstay of Dahomian power, and are described as generally superior to the men. Each carries, on service, a musket and short sword, and wears a uniform. "The bouncing Amazon, your buskin'd mistress, and your warrior love." Among the Dahomians vocal music is chiefly resorted to, accompanied by the monotonous sound of the drum, horn, or rattle.

Next, under (3), comes Yoruba, which seems to have no instrument with any pretence to a scale. The voice is the only musical channel or instrument, associated, as in Dahomey, with some monotonous or drowning accompaniment.

The Houssa melodies and their instruments show the warlike spirit and intellectual advance of the nation, and their wordings the Mohammedan conversion of the country by the Fulahs. Here we find more developed instrumental music.

In most of the works of travellers in West Africa we find references to the musical capabilities of its peoples. For such airs as we find set to music, the different missionary bodies who labour there must have most credit, as they have also for their invaluable work represented by the committal to writing of the various vernaculars spoken along that coast.

The Volof or Jolof speaking people cover the area lying between the rivers Senegal and Gambia, and extend eastward several degrees of longitude. Next to them comes, south, behind Sierra Leone and Liberia, the region occupied and influenced by the Mandingo nation, whose tongue is of considerable importance and wide range.

Both the Volof and Mandingo nations are now Mohammedan, and their musical capabilities are superior, perhaps, to those of the other nations touched upon in this paper, although the Houssa would run them close.

There was at the Colonial and Indian Exhibition of 1886 a most interesting contribution of their instruments, of which I would mention—

		MANDINGO.	VOLOF.
Big Drums	{ There are several kinds }	.....Tang-tang	.....Sabbar.
Small „	{ kinds }	..... —	.....Goring.
Harp	..	.....Korah	.....Kotah.
Guitar (four kinds)	.....	Conting	.....Harlain.
Violin	.....	—	.....Rutu.
Harmonicon	.....	Ballah	.....Ballafon.
Flute	.....	Griali-toh	.....Lutey.

The wandering minstrels amongst these peoples are known as *Gryots*.

[Here were played melodies Nos. 1 to 8.]

1.—BAMBARRA (*Mandingo*) AIR.



Sé - gu Kô Ba - dara - Kô al - in - Ka - tû - bi alin - Kon - tjé.
i.e.—The King of Ségu said to the King of Bambarra: "Submit (become Mahom.)
 or fight."

2.—MANDINGO AIR.



Fani ma manso dal talé . . . fani ma: dun ya djata lé.
i.e.—The good father, the king, said, { Oh! the world is beautiful.
i.e.—Life is sweet.

3.—MANDINGO AIR.



Sunkari bā da - sé Kélifa njan tjo né la dja - lo - so.
i.e.—Sunkari Ba, royal prince, come, give to thy musicians.

4.—MANDINGO WAR SONG.



Kélo té bay - la.
i.e.—There will be no lack of fighting.

5.—MANDINGO AIR.



6.—VOLOF AIR.

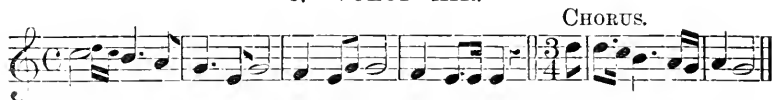


Vo - lay Har Yal - la dur - nā.
i.e.—Hurrah! Har-Yalla (a name) has been delivered of a child.

7.—VOLOF AIR.



8.—VOLOF AIR.



Bowdich, in his "Mission to Ashantee," and Cruikshank in his "Eighteen Years on the Gold Coast," dwelt on the love for music of the Tchi (Fante and Asante), and on their excellent ear. Their songs are described as recitative, and more frequently than not improvised, their subjects being dependent on and influenced by surrounding and current circumstances, running in the groove of ridicule, sarcasm, or flattery. Among their instruments we find drums of different forms and sizes, the guitar-like *sancho*, the flute, the horn, gong-gongs, rattles, castanets, &c.

So far, have you recognised any similarity between these and Scotch and Irish melodies? I remember on one occasion, after the Ashantee War (1873-4), remarking to a prominent Coomassie prince that their fetish proved of little avail against the British power. He replied that the Ashantees were not singular in their fetish: that the English had a bigger intermediary, near which he himself once stood in the greatest awe, in the forest near to Amoaful. He described this fetish as appearing in the form of a white man, with his arms a-kimbo as if blown out, his cheeks puffed up, and of such continuous motion as made him seem to grow bigger and bigger. He advanced fearlessly against the fire of the Ashantees—for *true this was a big fetish*. I showed my Coomassie friend a picture in *Punch* of a Highland piper, which he at once recognised, with some show of excitement, as his fetish friend. It will be remembered by many that in the battle of Amoaful, in the Ashantee War, the 42nd Regiment formed the advance guard, and mainly bore the brunt of the first severe fighting. What astonished the Ashantees, who fought behind or from trees or low-lying scrub, was to see company after company of the 42nd, each with its piper playing at its head, march across an open piece of ground in the teeth of the enemy's fire.


A curious view they took also of our land telegraph wire. According to the Ashantees we were strangers in the country; and as we did not know the route through the forest to Coomassie, the wire was erected, and chiefly connected by the growing trees, along the main road, to show us the way back to the coastline, where was our base of operations.

Further east and south, we find references to the Ewe or Dahomey music in Skertchley's "Dahomey as it is," as also in Burton's "Mission to Galele," where notice is taken of their drums, horns, gong-gongs, and gourd rattles. According to the former author, vocal and instrumental music is not indulged in together by the same person in Dahomey.

[Melodies Nos. 9 to 12 were here given.]

9.—A DAHOMIAN WARRIOR'S SONG.

Dahomey Air.



Moi na so gbu su do ko ma so sin de yan yan yan yan
nde a he A jana ku gboran de tin Ma do tu mi Moi na be dan
do mi ji Ma do tu mi Ji po do ai po na pe Ma do tun mi
Hun to gba du ku ma si ku han Hayan hayan ma hayan, a Hayan hayan
ma hyau, Moi na so gbu su do ko Ma so sin de yan yan yan nde a he.

Moi na so, gba su do ko—ma so sinde
Yan yan yan nde ahe
Ajanaku gboran de tin—ma do tu mi
Moi na be dan mi ji—ma do tu mi
Jipo do aipo nape—ma do tu mi
Hunto, gba duku masiku ban
Hayan hayan ma, hayan a hayan hayan
ma hayan
Moi na so gba su do ku ma so sin de
Yan yan yan nde ahe.

When I have my gun loaded
I will not fear anything.
It is ready, it is ready, that is something !
If the men are as huge as elephants
I will fire my gun at them.
If they are as frightful as snakes
I will fire my gun at them.
If the sky and the earth meet together
I will fire my gun at them.
Drummers on that day, never fear of death.
Hip, hip, hip, hurrah ! Hip, hip !
When I have loaded my gun I will not
fear anything.

A DAHOMIAN WARRIOR'S SONG.

Dahomey Air. Set to an accompaniment.





10.—“KERE-KERE.”

Popo Song.



Aganran lo m'ohùn odide O
Iya axé la b'odide sore O
Iyen ro ma no si re
Aganran lo m'ohùn odide O

The green parrot knows the voice of the
parrot.
The parrot's mother has made friendship
with the parrot.
That does not suit you.
The green parrot knows the voice of the
parrot.

Awa of'ese te nyin pa O
Enyin ko to olnye
Enyin ko to loti bo wa ja
Awa of'ese te nyin pa O

Ota mbe Etu mbe O
Enyin ko to olnye
Enyin ko to loti bo wa ja
Ota mbe Etu mbe

Aguda a de o anea de O
Ero 'wa wo ime oko
Aguda a de O
Konigbaybe orno olose O
Of'ori ya 'gbo l'Agado

Ayando ko gbé le oko moju mo
Oni on oso 'leke loni O
Aiye re O oko gbo ri O

We shall crush you to death with our feet.
Ye cannot cope with us !
Ye cannot cope with us in a conflict !
We shall crush you to death with our feet.

Shot is there, powder is there.
Ye cannot cope with us.
Ye cannot cope with us in a conflict !
Shot is there, powder is there.

O Portuguese ! we are come, we are come.
Passengers are come to view the ship.
O Portuguese ! we are come.
Konigbaybe, the son of the soap-seller,
Has broken Agado's fence with his head.

Ayando remains not in her husband's
house till dawn of day,
She says she will tie her head to-day.
This is a wide-world saying, we have
never heard it before.

" KERE-KERE."

Popo Song. Set to an accompaniment.



11.—LITTLE POPO (*Dahomey*) SONG.

Parabolic.





Avun su ma po pou ume
 Ado doe a je sunwe
 Avun su ma po pon ume
 Ado doe a je sunwe
 Ye vo tu jedo du si
 Ma no mio lo mi
 Aje sunwe
 Avun ma po pon ume
 Ado doe a je sunwe

A dog cannot look at a leopard's eye,
 It is a lie.
 White man's gun can be fired with the
 right or left hand,
 It is a lie.

(This is said of an enemy who cannot stand before his opponent.)

12.—LITTLE POPO (*Dahomey*) SONG.



Agbo ma seku ma savo
 De lan yin ye la yin
 Vodun ma seku ma savo
 De lan yin ye la yin

A ram never hears of death and gets
 frightened.
 What will be, let it be.
 Fetish never hears of death and gets
 frightened.
 What will be, let it be.

I beg to preface my later remarks by explaining that the territorial wedge lying south of the ninth degree of north latitude between the Volta and Niger rivers, on the West Coast of Africa (I speak generally and linguistically) is divided between the Ewe (Whemi or Dahomey) and Yoruba speaking peoples, the former occupying the western and the latter the eastern part. Yorubaland may be said to be now comprised within the area situate between Dahomey territory and the Niger main stream, the Nun.

Yorubas, although they have many songs, are comparatively unacquainted with musical instruments, if we except the drum.

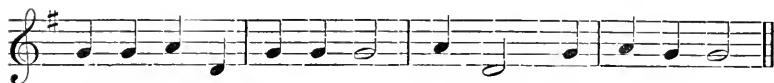
In the country are to be generally found itinerant drummers and singers. Their vocal effusions, confined as a rule to the compass of a few notes, and noisy and monotonous as they sometimes are pronounced, are usually accompanied by the drum, or by a set of drums, by the clapping of hands, or by the beating of time on some stick or on their tongueless native bell called *agogo*. The principal amusement of the youth of Yoruba is to dance to the beat of a drum, which serves as an accompaniment to song on the occasion of festivals, of great ceremonies, at births, marriages and deaths. "I have known that there was no musick with him, but the drum and fife."

[Melodies Nos. 14 to 17 were next given.]

14.—"TANI KPÈ Á O NI BABBA."

(Who says we have no father?)

Yoruba.



Tani kpè á o ni babba,
Sayi! a ni babba,
Oba Moloney babba wa,
Babba leyí babba lohun,
Sayi! a ni babba.

Who says we have no father?
Hurrah! we have a father.
Governor Moloney is our father.
Here is a father, there is a father.
Hurrah! we have a father.

"TANI KPÈ Á O NI BABBA."

(Who says we have no father?)

Set to an accompaniment.





15.—“AWA LA GBA IWE JUBILL.”

Yoruba.—Lagos Song in connection with the Queen's Jubilee.

A - wa la gba we Ju - bi - li, I - ro - hin la mu fun

yin wa, I - bi yio ba 'ya la - re - na, O - lo - mo O

fo mo re fo ko mo, Mo bè re A gba je lo la O

So - mo - ri O - ba jo mo, Mo bè re a gba je lo la,

Wo ya ya wo ya ya, wo ya ya wo, Somor-i O - ba Ko pe O,

Oi bo O mo lo ni So mo - ri O - ba Ko pe O.

Awa la gba 'we Jubili
 Irohin la mu fun yin wa
 Ibi yio ba 'ya la rena
 Olomo o fú mo re f'oko mo
 Mo bère Agbajelola O
 So mori Obajomó
 Mo bère Agbajelola
 Wo ya ya wo ya ya
 Wo ya ya wo
 Somori Oba kú pé O
 Oibo Omoloni
 Somori oba ko pé O

'Tis we who receive the Jubilee Book ;
 'Tis news we bring for you.
 Evil to the mother of an agent to the espoused !
 The parent won't give her child to the husband.
 Oh ! I ask for Agbajelola,
 The fashionable belle.
 Shout aloud ! shout aloud !
 Shout aloud—shout !
 Fashionable Governor, live long !
 White man Moloney—
 Fashionable Governor, live long !

16.—A FABULOUS SONG.

Yoruba Air.

O-lu-ku-lu-ku nje i - je E-wu-re E-wu-re E-wu-re O-lu-ku-lu-ku
nje i - je a-gu-tan a-gu-tan gbo-lo-jo O-lu-ro-un-bi nje i - je o-mo-re
o-mo re a-pon bi e po O-lu-ro-un-bi O jan-jan i ro-ko jan-jan

Olukuluku nje ije ewure, ewure, ewure,
Olukuluku nje ije agutan, agutan, gbo-lo-jo,
Olurounbi nje ije omo re omo re, aponbi epo,
Olurounbi o jan jan iroko jan jan.

Everyone makes promise of a goat, [sheep
Everyone makes promise of a sheep, a fat
Oluronbi makes promise of her son, as
yellow as palm oil,
Oluronbi o jan jan iroko jan jan.

17.—“MOWA O DE 'LE O.”

Yoruba Song. Ibadan.

Mo wa o de 'le o ng o ba o ni 'le o Mo tun lo pa de re
lo na o Ye! to ri o wo ko Ye! to ri a-so ko O
N je ni to ri a ni yan ni, Ye mo fe o ku Mo wa o wa O,
Se mi la le jo Ng o re le O E ran ni o se Ko ma se 'la O

Mo wa o de 'le o,
Ng o ba o ni 'le o,
Mo tun lo pa de re lona o,
Ye! 'tori owó ko,
Ye! 'tori aso ko o,
Nje nitori aniyan ni:
Ye! mo fe o ku,
Mo wa o wa o,
Se mi lalegò,
Ng o re 'le o;
Eran ni o sè
Ko ma se 'la o.

I seek you at home,
I do not meet you at home,
I go again to meet you on the road—
Ah! not for the sake of money,
Ah! not for the sake of clothes,
But on account of anxiety.
Ah! I have missed,
I come to find you,
Treat me hospitably,
I am going home;
You must prepare meat,
You must not prepare Okro.

The public singers are called *Akronin*, *Akewi*, and *Onirara*. They are classed as beggars, as are drummers and other musicians in West Africa. Their occupations are hereditary. Singers work in couples, sometimes more. They rely on their vocal powers, in the channel of abuse or flattery, for their maintenance.

In Yoruba a drum is called generally *Ilu*; its head, *Awo-ilu*; drumstick, *Igi-ilu*; and a drummer, *Onlù*.

The shells of drums are generally hollowed out from the wood of the *Emi*, the shea-butter tree, *Bassia Parkii*; sometimes from the silk cotton tree, *Bombax* or *Eriodendron*. Their manufacture is a special industry confined to a class. The completion of the drum devolves upon the drummer as regard its heads and bracings, for which sheep, kid, deer, and calf skins are used.

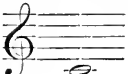
Drummers never accompany their playing by singing themselves. Their aim seems to be confined to imitating by clearness of sound and precision of notes on their instruments, the wording of songs so far as their accents through such a medium can convey. They consider they can make the wording of a song recognisable merely from its air. In support of their conceit they have a saying, "Alu dundum ki gbe orin"—"The player of the dundum never joins in the song." Such musicians consider they can make their instruments speak. Do we not hear similar expressions at home on musical talent?

A Yoruba goes so far as to consider that his language is sufficiently musical to be easily imitated instrumentally, and accordingly to allow a player through his instrument to convey his thoughts without having recourse to words.

Such imitation is often referred to as the drum language, viz., the imitation of the human voice on the drum; and to understand it, according to them, one has to know the accents of pronunciation in the vernacular, and to be capable of recognising the different and corresponding notes of the drum.

The following example explanatory of the foregoing has been given to me by an enlightened and thoughtful Yoruba, Mr. E. H. Henly:—


"To understand the drum language one has to master the accents marking the tonations: besides, a long acquaintance with the different kinds of drums is necessary. The accents are three in number, the grave (`), the acute (´), and the circumflex (^). The middle sound has no accent at all. To reduce these tonations to their proper musical sounds so as to make them sufficiently intelligible to a foreigner, I shall take as keynote


Do, or C,  If this sound represents the middle tone, I

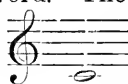
take the word *aládúgbò*—neighbour. This consists of—

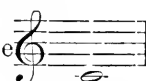
1 middle	} Accent.
2 acute	
1 grave	

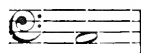
The acute is always a higher sound than the middle. Then if

 be the middle, the acute would be about a fifth above

Do, e.g.,  This represents the two acute accents

or sounds in the above word. The grave accent is always lower than the middle. With  as middle the grave is almost

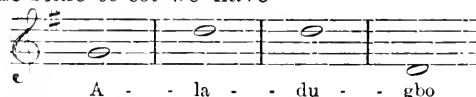
an octave below it. This would be 



The whole sound now would be—



or change the scale to *sol* we have—



This represents the proper or actual tonation of the word, though in speaking the tonations appear to be very latent."

I may here tell you that the inhabitants of the Canary Islands, of Spain, and especially those of the Island of Gomera, have been credited with the possession of an articulate whistling language, by which they can communicate the most minute incidents. But my friend, Mr. W. Duppacrotch, who has resided for more than a year in Gomera, and speaks perfectly Spanish, assures me that this method of communication is very far from articulate, and serves only as a recognised code of signals referring to the pastoral life of the shepherds by whom it is employed. It is, however, interesting, since the present inhabitants seem to have derived the custom from the original Guanches, who were, it is believed, a Libyan tribe.

I gathered from a musical and enlightened Yoruba gentleman that the native character partakes often of a nature spiteful and revengeful on the occasions of trivial offence, and gives rise to many songs of an offensive turn, which have necessitated at times, in support of public peace, the interference of

the Government as to grants of permission to sing or play in public.

In Yoruba no attention to setting to music native airs seems to have been given, except, perhaps, in the matter of making church-going more attractive by giving hymns native airs.

On such a practice I cannot, perhaps, do better than quote here from a note I received from a native and respected pastor of the Church Missionary Society, Rev. J. White, and give examples of such hymns:—

“The Otas being reported to be famous native poets and musicians, and finding a difficulty to teach the new converts to Christianity English tunes, I asked them to compose their own hymns and songs, which they did, subject to my corrections with regard to things unscriptural, and the collection contained in the book is the result. They are used to this day in divine worship. There is nothing like rhyming or metre. The hymns and songs being their own composition, they are intelligibly sung by old and young, and I have no doubt that the use of it has tended to deepen their devotion.”

“AWA DE AWA WA GBA DURA.”

Ota hymn. Ota is a dialect of Yoruba.

A wa de O A wa wa gba du ra A wa de O

a si wa sok-pe a - - nu Gbi gbe ga gbi gbe ga lo

lo ga O go O lu wa to fe ni ju 'ya wa lo

O lo du ma a a re O e yi se 'Le da e

E m' ra e mu ra O jo kun si de de En jin O mo

'le - gba Ke kan mi wo ke o wa sin 'le da e E ja re



Awa de o, awa wa gba dura,
Awa de o a si wa sokpe ànu,
Gbigbega, gbigbega loga ogo,
Oluwa to fe ni ju 'ya wa lo,
Olodumare ó, eyi se Eleda E.
Emura ! emura ! ojo kun si dede,
Enjin ómo Elegba, ke kan mi wo,
Ke o wa sin Eleda E ?
Ejare, jowo E
Ye ! enjin omo elegba, enjin Ejare.

We are come—we are come to pray ;
We are come to give thanks for mercies.
The Most High is to be exalted—
The Lord who loves us more than our mother,
The Almighty, who is the Creator.
Be ready ! be ready ! the day is at hand.
Ye sons of Satan, what are you waiting for,
That ye come not to serve the Almighty ?
Be pleased, ah ! be pleased,
Ye sons of Satan, be pleased.

OTA (Yoruba) HYMN.



Olodumare E lo to ni gba e
E d'opo Ijisesi mu
Eyin om Ota
E mura a ka se eyi t'Olorune

The Almighty, He is able to save us,
Hold the post (cross) of Jesus,
Ye children (people) of Ota
Make ready and come to God's service.

The following are the principal drums of the Yoruba country, with their distinctive uses:—

(a) *Dundum, gangan, gudu-gudu and koriya*—a set of drums used by beggars. The *bata* of three different sizes forms another set.

(b) *Bata-koto* and *shekere* (rattle), (employed in sets of four or six) represent the instruments used socially by young men.

(c) *Gbedu* (used in a set of four sizes), and *koso* (singly used), are exclusively royal drums, and are played only in the king's service.

(d) *Bembe* (used singly) is the distinctive drum of a war chief or Balogun.

(e) *Agre* (used in a set of four sizes) is the hunter's drum.

(f) *Agba-ogboni* and *Ilu-oro* (used in sets of four) are respectively the Ogbonis' or Oshogbos' (native Freemasons), and Oro (native police) drums.

Within the compass of such a paper as I am at liberty to present here, I am unable to give detailed descriptions of the shapes and manufacture of such instruments. Such depend on the fancy of the carver and on the usages to which they are put. They are generally constructed of sizes varied to insure different measures of sound.

The *dundum* and *gangan* are carried under the left arm, and beaten each with one drumstick, the notes being regulated by the necessary pressure against the cords with which each is surrounded and braced, the fingers also helping. On these drums it is believed by natives that words can be expressed and names called.

The *gudu-gudu* resembles a kettledrum, and serves, as does the *koriya*, as an accompaniment to the *dundum* and *gangan*.

The *bata* is very different in construction from the foregoing, and resembles a truncated cone. In use it is suspended from the neck. While the hand plays on the broad base, a leather stump is applied to the smaller end.

The *bata-koto* is made of two gourds or calabashes, with necks joined or braced. The base of one is cut off and replaced by sheepskin. It is beaten by the hand.

The *shekere*, or *agbe*, is a rattle composed of a gourd covered by a network of cowries. Its jingle serves as an accompaniment to a song.

The *gbedu*—the royal drum—is the largest of native drums, standing some 5ft. high, with a diameter of 2ft. to 3ft. It is covered with deerskin. There is associated with the *gbedu* a saying, "Aiku ekiri akole fi awore se gbedu" ["The ekiri (deer) being yet alive, the skin cannot be tanned and used as a drumhead."] The *gbedu* is accompanied by smaller drums, called *opere*. The *koso*, also a royal drum, is similar in shape to the *gangan*, but has only one end covered with skin, the other being left open.

The *bembe* is a large drum used by the war chiefs when on active service. It is played hung from the neck of the drummer, by the hand at one end and by a drumstick at the other. It has been compared in shape to our brass drum. It is accompanied by a smaller drum, *omele*, and a gong or native iron bell, *agogo*. The *kere-kere* drum resembles the *bembe*, but is beaten differently, and used on other occasions.

The *ageve*, or hunter's drum, is used in sets of four, each of which is played with two sticks. It is said that the elephant is worshipped as his chief god by the hunter, who dares not to eat its flesh, believing if he did so, it would end in his death.

The *agba-ogboni* is also and generally used in sets of four, in some cases of eight or nine. The heads are made of calf or sheep skins. These drums are beaten when the *Ogbonis* have their meetings, or at the death of an *oluwo* (judge), or of an *apena*

(magistrate). The largest drum of the set is called *iya-ilu*, the next *ogidan*, and the two smaller ones *opere*.

The titled *Ogbonis*—such as *Lisa*, *Oluwo*, *Odoṣin*, *Bàse*, *Bàla*, *Apona*, &c.—are collectively called the *Oshogbos*; those without titles, *Ogbonis*.

The *Oro* drums resemble those of the *Ogbonis*. The largest is called *obetè*, the remaining three *asipele*. These drums are used with the *Oro* stick to proclaim meetings of the *Oro* society (composed chiefly of *Ogbonis* or *Oshogbos*) convened for the trial of public offenders, for the consideration of state questions, &c.

Here a description of *Oro* may not be out of place. It represents the active embodiment of the civil power, its mysterious head or idol. It has been interpreted as the executive of the state deified. The *Oro* stick—by which proclamation also takes place—is comprised of a stick resembling the handle of a whip, from the thin end of which is suspended, by means of a piece of string, composed of some native fibre, a flat thin tongue-shaped piece of wood, about five inches long and two inches broad.

The *Egbas* (Yorubas) resort pre-eminently to this practice, and when "*Oro is out*," all women, under pain of death, are obliged to remain shut up in their homes. The greatest reverence is extended to this instrument. I have seen even persons professing to be Christians awe-struck in its presence. By means of the handle of the *Oro* stick the tongue is given a rapid circular motion in the air, and then causes a weird noise, not unlike that we hear on stormy nights when the wind is playing down the chimneys. When such a noise is heard *Oro* is said to be out.

The law of the *Egbas* in connection with the close confinement, on such occasions, of women in their houses is unalterable. Any woman, whatever her means or position, who should be taken in the streets, when "*Oro is out*," would forfeit her life.

To satisfy the time I am allowed on such an occasion as is this, it will suffice here to say that the present site of the kingdom of Sokoto—I speak generally, situate on the central Niger to its left, and north-east of Yoruba—may be viewed as the former Houssa area. The wave of Islamism from the north and east of Africa, to the valley of the Niger, has transformed it from a pagan to a Mohammedan state, and has also affected for the better its national music, as will be recognised by the developments its instruments have since taken. *En passant*, I would say that by those who have any experience of the country, and are unprejudiced, it will be readily acknowledged that Mohammedanism has done, and is doing, much in many other ways to enlighten and raise the African.

The intonation of the Mohammedan call to prayer of the Muezzin (for which Mohammed's blind servant has the credit—whence he got it is another question), as given in music (which was here played, No. 20) from Lane's "Manners and Customs of the Egyptians," is now commonly heard in most of the important centres of West Africa, another proof of the flow of Islamism.

It may be little known that our defensive forces in the Gold Coast and Lagos colonies are fine soldier-like Houssas, very musical, of quick ear and marked intelligence. In their bands the Houssas have been trained for years to the use of our ordinary reed and brass instruments, as well as bugle, fife and drum, on which they have learnt to play, without knowing a note of music, our marching tunes and dances. The training of representatives of the race at Kneller Hall now represents an interesting feature in their current culture, which must later tell on the musical talent of the country.

Not only do we find of the Houssas strolling singers as in Yoruba, but also itinerant musicians, who play on drums and wind instruments.

Among the musical instruments of the Houssas, I may mention the ordinary drums (*dúndūfa* and *bembe*), the war drums (*gánga* and *gangámi*), their harp-like *garaiya* and *gobso*, their guitars (*gurumin-kiddi* and *molo*), their flutes (*elgaita* and *sarewa*), their one-stringed fiddle (*goje*), and their clarionet-like bamboo (*sheshe* or *busa*).

[Houssa melodies Nos. 18 and 19 were here played.]

18.—"DĀ KĀRĪFI KAN JA FATA."

Houssa Song.

Da ka ri fi kan ja fa ta Da ku ru di, kan ja wa sa

Du ni ya ba ta so go ni ba kan ku ta ra ku zo ku gan Gomi na,

Bai sa ba de ba ba ba Al la yi ba ka ba mu ta - ni ba

Dā kārifi ja fāta
Dā kurudi kan ja wasa
Dūnia ba ta so go nī-bā
Kānku tara ku zo ku gan Gomina
(Sūrīki)
Bai saba de ba ba-bā
Alla yi baka ba mu-ta-ni bā.

The strong man incites a fight.
The rich man invites a play.
The world never likes one who is doing good.
Gather yourselves, come and see the Governor,
There is no saying he is not.
It is God who gives and not man.

19.—HOUSSA SONG.



Mai ra bo ya sa mu, A sa da ban-za tshe, Da sin-ki da sun -
 so, Al-la i-na ta re da kai, Ka zam bu su so ba.
 Al-la i-na ta re da kai, Zan ma na du ni yan, Da kan ku -
 - ri kan ta - ra Ta sa da bam ta Al-la-da bam.

Mai ra bo, ya sa mu,
 Asa da, banza tshe;
 Da sinki da sunso
 Alla ina ta re da kai,
 Kazam bu su soba
 Alla ina ta re da kai.
 Zan-ma na duniyan
 Da kankuri, kantara:
 Ta sa da bam, ta Alla da bam.

What is given me, belongs to me.
 He that is against it is foolish.
 Whether he likes or not,
 God has given me already.
 Whether he likes it or not,
 God has given me already.
 He that lives in the world,
 With patience, will command all things.
 Foolish man is different, God is different.

Sir John Hawkins has conveyed the idea that the best music of barbarians is said to be hideous and astonishing sounds, and has consequently asked of what importance, then, can it be to inquire into a practice that has not its foundation in science or system. The question naturally arises, has science or system always existed, or have they not been the outcome of the progress of time, of civilisation, and culture? Nations have been surely progressive in their development, and have not stood, and do not stand, on the same scale of civilisation. Have we not reached our degree towards perfection by cultivation?

Again, surely the knowledge of the musical, as of other, attainments of peoples is a matter of comparative interest and anthropological value.

According to Carl Engel, in his book entitled "The Music of the Most Ancient Nations," a clear idea of the gradual development of the art of music from its most primitive condition to that degree of perfection in which it at present exists among ourselves, may be best obtained by examining the music of contemporary nations at different stages of civilisation.

Although to many of us the music of natives may appear comparatively grating and barbaric, continuous and monotonous melody, devoid of variations—and we may say, as in

"Othello, "The general so likes your musick that he desires you, of all love, to make no more noise with it"—yet it has to them spirit and charm, and on them the same effect as regards pleasure and pain as ours has upon us.

"Susceptibility for music is in a greater or less degree national to all men, and is not dependent on the state of civilisation which has been attained."

It must be remembered that airs derived from relatively uncultivated races can seldom be accurately repeated on a keyed instrument, and since they owe their individuality and effect to peculiar intervals, such as diminished or increased flats or sharps, which no instrument, except the violin or violoncello, is capable of producing, there can be no doubt that airs which, to our ears, sound monotonous, or even discordant, produce a very different effect when sung to a native audience, much as in the animal world one cry is warning and another encouraging, to creatures of the same species, although by those of a different race they are unheeded or unintelligible. This will somewhat help to explain why a violin and not a piano has been used this evening to give you the melodies, although they have been written for the latter instrument.

I was glad to learn from the Portuguese consul at Newcastle that the Lisbon Geographical Society has been for some time collecting popular African melodies, many of which—for instance, in the Cape Verde Islands—appear to him to be the products of Portuguese popular music, especially the songs called *Fados*. This must be inevitably the result of exile or of the alien and aboriginal blend along Western Africa.

Signor Prado has within the last few days informed me from Paris that he has been collecting popular airs of Brazil, which he finds much influenced by the Negro element. I am to be favoured later with the result of his comparative study, which might with interest and advantage embrace the *corn* and other songs of the Negroes in the United States of America.

Monteiro and Messrs. Capello and Ivens came across genuine native melodies and recognised the general musical inclination of the peoples among whom they travelled. Frequent references will be found in their writings to the plaintive *marimba* (Zanze of Senegambia), the shrill *pipes*, and roaring *bumbos*.

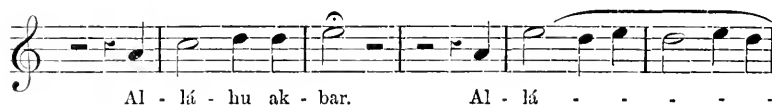
The specimens of Volof, Mandingo, Dahomey, Yoruba and Houssa melodies, to which you have listened, have been described as capable, in the hands of a musician, of accompaniments. Examples in the case of a Dahomeyan warrior's song, of "*Kere-kere*," and of the song named "*Tani kpe á oni babba*," with which I am proud to be identified, have been so attempted, but for the piano.

Some of these airs seem capable of ready adaptation to bugle or band marches, and in such direction I would invite the

consideration and co-operation of some generous artiste, who by undertaking such a task would be not only gratifying individual taste, but would also be extending a nice compliment to the nations whose melodies have interested so many on this occasion.

In conclusion, it is my pleasing duty to acknowledge, in connection with these airs, as also for much of the information which has helped me to compile this paper, my indebtedness to a German artiste and missionary labourer in West Africa, the Rev. J. Haas, and to two native gentlemen of considerable musical promise, Mr. A. C. Willoughby and Mr. O. E. Macaulay, of Lagos, whose English education has enabled them to commit to music the Yoruba, Dahomey, and Houssa melodies.

20.—MOHAMMEDAN "CALL TO PRAYER" OF THE MUEZZIN.





Ehler's Ascent of Kilima-njaro. — Further details have been published in Peterman's "Mittheilungen" in the form of a preliminary report (with map) on his journey, by the traveller himself. On the 12th November, Herr Otto F. Ehlers, in company with Dr. Abbott, an American naturalist who had been collecting for upwards of a year in the country round Taveta, left Marangu with a party of 30 men. The first camp was pitched at the foot of a small crater almost due south of the eastern peak, Kimawenzi, at an altitude of about 9,800 feet. On the following day Herr Ehlers made an excursion to Kimawenzi and reached a height of about 16,400 feet. Any further ascent of this remarkably jagged mountain seemed to him impossible. The two following days were spent in collecting plants and searching for a suitable camping place where the majority of the native followers might remain, while the travellers proceeded up the mountain. A spot was chosen to the west of their last camping ground, at an altitude of about 10,500 feet. From here the two travellers started with five men and provisions for four days, taking a northerly direction up the saddle, between Kibo and Kimawenzi. After some hours' marching they discovered that they had made the same mistake as Dr. Meyer had done in 1887, and were proceeding in a direct line to the summit of the lower eastern peak. Being at this moment overtaken by a snowstorm, they pitched their camp at an altitude of about 15,500 feet. On the following morning, which broke bright and clear, they set out in a westerly direction over the newly-fallen snow, proceeding along the northern edge of the line of lava hills mentioned by Dr. Meyer, whose route lay along their southern side. After much toilsome marching, snow having commenced to fall again, the natives were compelled to return, leaving the two travellers to push on to their last camping ground (17th November). The morning of the 18th was exceptionally clear, and an early start was made over the hard-frozen snow. At seven o'clock they found themselves at an altitude of 16,200 feet, about the middle of the eastern side of the summit. Instead of attempting to ascend from this side as Dr. Meyer had done, they proceeded in a north-westerly direction over lava streams and rocky boulders to the northern side of Kibo. Unfortunately, at this point Dr. Abbott completely broke down, and Herr Ehlers pushed on alone. Keeping to the east of a mighty lava stream, he pushed his way over sand, ashes, and rubble, covered with the freshly-fallen snow, and, after repeated halts, but without suffering at all from the rarity of the atmosphere, he arrived at ten o'clock at the ice wall, which completely encircles the actual summit, and the scaling of which at this point was impossible. He consequently proceeded along this wall of ice for some distance in the hope of finding a point at which it could be surmounted, but after a time was compelled to retrace his steps, owing to a steep fall in the ground. Descending the summit a little, he contrived by much toilsome climbing to get round to the north-east side of the summit, and here, from a point of some little elevation, he obtained a comparatively wide view over the summit.—*From the Proceedings of the Royal Geographical Society, April, 1889.*

THE GEOGRAPHICAL DISTRIBUTION OF PLANTS.

By Mr. LEO GRINDON.

[Addressed to the Members, in the Botanical Gardens, Old Trafford, Aug. 26, 1889.

Illustrated by the plants in the Gardens.]

EXCEPTING in the Arctic regions, that which we term the scenery of the world owes its most distinct and pleasing features to vegetation. The sea, waterfalls, huge rocks, even deserts and wastes, may be imposing, but they never awaken ideas of living and joyous beauty; nor, from their similarity, can they supply pictorial characteristics, or confer features upon the landscape, such as comes of the abundant presence of trees, of the verdure of meadow and pasture land, and of displays, in their season, of flowers and fruit. Much of the pleasure we derive from the contemplation of vegetable matter arises, without question, upon the chaste and harmonious blending of its multifarious elements. So deeply is the mind affected by the sweet fact of Nature's original and spontaneous intermixtures, that all the best efforts of decorative horticulture are devoted to imitating them as far as may be practicable. A botanic garden, legitimately so called, is a synthesis of the vegetation of every country and climate. It strives to associate examples of all known types of vegetable structure, and so to assemble them that they shall present a spectacle permanently delightful. Such a garden thus becomes a kind of keynote to the lofty and fascinating department of science which bears the name of Botanical Geography—our theme this afternoon; and well pleased may we be that our present contemplation of it can be pursued amid conditions so favourable. If deficient in certain classes of hardy herbaceous plants, shrubs, alpine, and aquatic, the conservatories, at all events, are crowded.

In all considerations, whether moral or philosophical, it is wise to begin at home. Let us start, then, with our own country, Old England. Careful inspection of the indigenous flora of even so limited an area, soon shows that plants, when growing wild, prefer particular habitats. Introduced into gardens, they show themselves singularly civil and obliging, cheerfully acknowledging the sovereignty of man. Many, no doubt, at first are shy; but there are no plants, perhaps, which refuse to accommodate themselves, sooner or later, if kindly treated, to circumstances very different to those of their birthplace. It remains true, nevertheless, that all plants have original preferences—ascertaining which, we know exactly where to look for them. How varied, in our own immediate neighbourhood, the vegetation of the peat bog, the moorland, the marsh, the copse, the wayside! A short railway journey will introduce us again to yet other floral spectacles—those found upon the shore and upon mountain summits. Crossing one of the Cheshire or Lancashire mosses, St. Chad's for example, we identify it at midsummer by its innumerable "silver tassels," white as snow, which for a while relieve the dismalness. The Birkdale sandhills are marked by their mat-grass, blue eryngo, and sundry curious spurges. In the woods we find the anemone, the azure harebells, and the crimson lichens. Extending our survey, but still not quitting England, different geological formations are found to be equally well distinguished. The botanist who delights in the golden *cistus* must wait till he

treads upon limestone. Slate, clay, lias, chalk, all have their aboriginal inhabitants. Plenty of hard fern is a tolerably sure sign of millstone grit. Everything true of the land is, in this respect, true also of water. Look at the virgin lilies upon the mere; the "green mantle of the standing pool;" the snow-cups of the running stream, when clean and clear, like the Wye at Millersdale and the Avon at Stratford, Sabrina's own tresses floating beneath. So, too, when the water is salt, where rock-bound Old England has a fringe of black fuci. Other localities yield the

"Crimson weeds that spreading flow
Or lie like pictures on the sands below,
With all those smooth round pebbles that the sun
Through the small waves so softly shines upon."

A pleasing attribute of many plants is their *sociability*. They love their kin, and to live side by side. How vast the territories occupied by the common bracken! The sight of one russet frond means the sight of ten thousand. Similar fraternising is characteristic of the golden furze, in its two varieties, and of the lilac heather in September. Were every plant known to botanists to insist upon living in companies equally large, and to have a domain of corresponding extent, there would be room in the world for only 8,000 species instead of 100,000. Many of the aquatics follow suit, as illustrated very conspicuously in the Potamogetons and the Stratiotes. *Per contra*, there are many plants which prefer comparative isolation. Agrimony, though widely distributed as a species, is almost always found living alone. That curious sylvan orchid *Epipactis latifolia* behaves in precisely the same way—plenty within half a mile, but careless of companionship. This remarkable isolation cannot come, in the case of the orchid, from want of power to produce seed, for the seed is beyond counting. How this fact shall be explained is one of the problems waiting solution. Upon these curious habits in regard to sociability rests a good deal of the difference between the "Vegetation" of a district and its "Flora." When there is immense monopoly, as in the case of the heather, the whortleberry, and many other plants—certain kinds also of trees, as pines and firs—though the "Vegetation" may be copious, the "Flora," or number of constituent species, must needs be very limited. Isolation, on the other hand, gives opportunity for a vastly greater number of distinct forms within an area no larger. There is room, then, for a very rich "Flora." A "Flora" may also be rendered very rich by the occurrence of "rare" plants, for many species occur in extremely few localities—the *Arabis stricta*, for example, of St. Vincent's Rocks, which is found scarcely anywhere else. Why the *Arabis* should be peculiar almost to Clifton is another of the problems standing over.

So much for Old England, upon the botanical geography of which I have dwelt so long, because Old England is a miniature of the whole world. Every principle in Nature, almost every type found in foreign countries, is illustrated in our own island. We are short of glaciers and active volcanoes—and we have nothing, perhaps, that can be called representative of the elephant and the kangaroo—but miniature images of all besides it would not be difficult to discover. Man is the epitome of all organic existence: Old England is the epitome of the planet it ornaments so thoroughly well. So that in reference to Botanical Geography, the facts and phenomena observable in foreign countries differ in no degree, as to kind, from those which fall under our everyday home observation. They are played forth, often, upon a far more magnificent scale, and excite corresponding astonishment and admiration, but in the entire category there are probably no unaccustomed descriptions of fact. Abroad, instead of character being given by special plant-forms to little plots like Chat Moss or the Birkdale sandhills, entire regions become distinguished. Instead of localities, we have plant-nations, so to speak. At the Cape of Good Hope grow Proteas and 95 per cent

of all the known *Ericas*. The Cactuses, in their numberless forms, belong to the warmer part of Central and Southern America. Eucalyptuses and 95 per cent of all the known species of *Acacia* belong to Australia. Siberia is noted for its gigantic Umbelliferae. The United States have their countless *Solidagos*. The *Cinchona* trees belong to special elevations upon the Peruvian Andes; and so on indefinitely. There are corresponding examples, upon a great scale, of sociability, as illustrated in the pine forests of Northern Europe and North America. Isolation is similarly illustrated in the silver tree of the Table Mountain. The ocean, after the same manner, has its parallel story to tell, that wonderful seaweed the *Sargassum* being confined to the portion of the Atlantic which lies between 22° and 36° north latitude and 25° to 45° west longitude. Just, again, as in England we have the universal daisy, there are cosmopolitans in regard to continents, as illustrated in the *Stramonium* and the *Solarum ingrum*, which are scattered over the whole of the warmer portions of the globe.

Arrived at this point we find ourselves embedded in a score of the most stupendous of scientific questions, Why are the same species of plants not present when the conditions of soil and climate are similar? Why do certain species of plants predominate in particular districts? Is the possession of that particular district ancestral, or has it been acquired in course of time? Why, *per contra*, are others so rare? Before any one of our score of queries can be answered, we have to gather together all that Geology has to disclose. The story has yet to be related that tells of the *Cycadaecæ*, fossil and recent, and of the rise and progress of the ferns. Next comes the grand doctrine of Centres—the hypothesis, rather, which teaches that the 100,000 species of plants now existing were associated in the “beginning” in definite spots, whence they spread away, in course of time, just as the circles move upon the surface of still water. Abreast of all of these are the doctrines of Evolution, and the Survival of the Fittest, with the hand-in-hand question of the Origin and the Unity of Mankind. There is evidently plenty to do. The disposition with too many, it is to be feared, is to lay down laws from an insufficient basis of ascertained fact. Other theorists shut their eyes to the exceptions, or decline to inquire if exceptions exist, such as would be fatal or calamitous to their own views. For my part, I am not yet young enough to presume to pronounce a definite opinion in regard to any one of these problems. Were I twenty-one, I should probably feel quite sure—for the present, accordingly, I must beg leave to be excused.

Many extremely attractive and curious facts pertain to the prolonged consideration of this charming subject—the Geographical Distribution of Plants. The plants of a given country are often represented, for instance, in some measure, by certain other plants, not decidedly related, but bearing a near general likeness. In Australia, the *Ericas* of the Cape are represented by *Epacrids*. In South Africa, the *Stapelias* and some of the *Euphorbias* remind us of the American Cactuses. There are also remarkable “echoes,” if I may so term them. Certain New Zealand *Veronicas* and *Conifers* resemble northern hemisphere *Lycopods*; the *Casuarinas* seem another utterance of the *Equiseta*; the *Villarsia* recalls the *Nymphaeas*; passion-flowers, in many particulars, reiterate *Cucurbits*. Alluring, again, when all is known, will be the tale of the migrations of plants, including those which take place by sea. Many seem to follow in the wake of civilised man. Civilisation, in truth, is in a measure actually abolishing the primitive geographical distribution of at all events weeds and economic plants. European agricultural weeds go, as colonists, to America and to Australia, and settle there. American weeds return the compliment by establishing themselves in Europe. Large and handsome plants do the same. The *Opuntia* is now as common in Southern Europe as the apple-tree is in some parts of temperate South America

and maize in Africa, and as many conifers from distant regions are becoming in England. A well-known example occurs at Bournemouth. The characteristic plants of countries, like their primeval human inhabitants, will in many instances become legendary. Much has yet to be learned, moreover, and compared, in regard to altitude and latitude—the conformity of Alpine floras in particular—and the degree of cold that particular plants can endure. In reference to the last point it may be remarked that there is no such thing as “acclimatising.” The utmost that can be accomplished in this way is to find out what degree of heat or cold a plant can endure without being killed. The cultivation of the Cinchona tree, now in progress in India, shows how substantial is the value of these various inquiries. Botanical Geography, in a word, is a science fraught with practical usefulness, not less to the welfare of nations than to the student of the laws of Nature.

PROCEEDINGS OF THE SOCIETY

FROM JULY 1ST TO SEPTEMBER 30TH, 1889.

HUNDRED AND SECOND MEETING

Of the Society, held in the Co-operative Hall, Longridge, Monday, July 8th, 1889, at 5 o'clock p.m. Alderman R. BATES in the chair, and about sixty members present.

The members met at Victoria Station, and went by train to Accrington. There they found carriages which took them to Whalley, where the Old Church and the Abbey grounds were very carefully examined, and the party listened with very great pleasure to the explanations of some of the members who, being acquainted with the district, acted as guides. Mytton Church, the burial-place of the Sherbournes, was examined with much interest. Passing through Hurst Green, the members arrived at Stonyhurst, where they were received at the College by the Rev. Professors Gerrard, Perry, Sircum, Pennington, &c., who very kindly allowed them to examine this great seminary—the classrooms, the dormitories, the library with its great treasures of literature and art, the chapel, assembly-rooms, play rooms and grounds, the beautiful gardens and yew-tree walks, the observatory, and the leads of the College, from whence a splendid view of the surrounding country was obtained. The observatory was peculiarly interesting. The method of taking the sun-spots every day was shown, and the scientific apparatus fully explained. After visiting the College the members assembled at the Fenton Arms and partook of a capital dinner, and then the carriages took them to Longridge, where they had tea at the Co-operative Hall, and some remained to climb Tootal Heights, from which a magnificent panorama of the Lancashire coast was seen.

The journey was a delightful surprise to a good many members, who had no idea of the beauty of the valleys and uplands of that part of Lancashire and Yorkshire.

Very hearty votes of thanks were given to the authorities of the College, our host of the Fenton Arms, and the committee of the Longridge Co-operative Society, for their kindness to the members, and to the chairman for his kind presidency.

HUNDRED AND THIRD MEETING

Of the Society, held at the Eastham Ferry Hotel, on Saturday, July 27th, 1889, at 5 o'clock p.m., Mrs. BOSDIN T. LEECH, one of the members of the Council, in the chair.

The members proceeded to Liverpool, and were received on board the *Fairy Queen*, where lunch was served, and they were landed at Ellesmere Port.

Mr. Councillor LEECH then guided the members, pointing out the progress of the Ship Canal works, and showing them the working of the excavators, the method of rock-blasting, the position, &c., of the dock gates at Eastham, the cottages of the workpeople, and noting the work which had been done on this section since the last visit of the members.

The journey was made less laborious on this occasion in consequence of Mr. Walker very kindly placing some wagons and an engine at the service of the members.

At four o'clock tea was very satisfactorily served at the Ferry Hotel.

Mr. Alderman BATES, J.P., moved the following resolution, which was seconded by the MAYOR of Heywood, supported by Mr. BOOKER, and carried with much cordiality :—

"That this meeting of the Society desires to express its hearty thanks for the pleasure the members have this day enjoyed, and the information obtained, through the courtesy and kindness of Mr. Leader Williams, Mr. T. A. Walker, Mr. Councillor Bosdin T. Leech, and Mr. Thompson."

Mr. BARLOW moved and Mr. PROVIS seconded a vote of thanks to the Secretary for organising the visit, which was carried.

The SECRETARY replied, and asked the members to make an effort to increase the membership.

Mr. BLAKE moved and Mr. GREGORY seconded a very hearty vote of thanks to Mrs. Leech, which was carried with acclamation.

Mrs. LEECH responded, and the members returned to Liverpool, arriving in Manchester about nine o'clock.

HUNDRED AND FOURTH MEETING

Of the Society, held at Dean and Dawson's Hôtel, Rue Titon, Paris, on Friday, August 9th, 1889, at 9-30 a.m., Councillor ROPER in the chair.

The members, to the number of about fifty, stayed a week or ten days in Paris, and were everywhere received with great kindness. On this day they waited on the President of the Republic, to present him with the first four volumes of the *Journal*, at the request of the Council.

The arrangements were made at this meeting; and thanks were given to Mr. Dean and all those who had in any way helped to make the visit as happy and profitable as it turned out to be, after which the members went to the *Elysée*, and were received by the President.

Two young ladies, Miss EDMONDSON and Miss DEAN, presented the President with handsome bouquets, and Miss LAW presented him with the *Journals*.

The SECRETARY, in introducing the deputation, thanked the President for the opportunity of seeing him, and said that the Manchester Society (a young one) had received great kindness and help from a large number of French Geographical

Societies; and the Society desired, through the President, very cordially to make acknowledgment of these many kindnesses. He also referred to the President's grandfather in a few graceful words.

In reply, the PRESIDENT expressed his pleasure in receiving the members present of the Manchester Geographical Society, and wished success to the Society in its work. He warmly welcomed the members to Paris, and hoped they would have great enjoyment of their visit; and, thanking them for the Journals, said they should be kept as souvenirs of the kindly feelings expressed by the Society, and of the complimentary words spoken to himself.

The President was then introduced to the members, and after a few more words retired.

The members were then invited to look over the Palace, which gave them much pleasure; and, on leaving, the secretary of the President handed to the members, at the request of M. Carnot, a framed portrait of himself, as a gift to the Society and an expression of goodwill.

The Portrait has been carefully brought to Manchester, and will adorn the walls of the Library.

The Secretary (M. le Colonel Lichenstein) then shook hands with the members, and saw them to their carriages.

The Secretary of the Society attended the International Geographical Congress, and will duly report thereon.

HUNDRED AND FIFTH MEETING

Of the Society, in the Palm House of the Botanical Gardens, Monday, August 26th, 1889.

The members were received at the Gardens, on behalf of the Council of the Society, and after an inspection of the Gardens, were addressed on "The Geographical Distribution of Plants," by Mr. LEO. H. GRINDON, with illustrations drawn from the plants in the Gardens. (See pp. 299-302).

After tea, the Venerable Archdeacon ANSON took the chair, and the SECRETARY gave a lively description of the visit of the members to Paris.

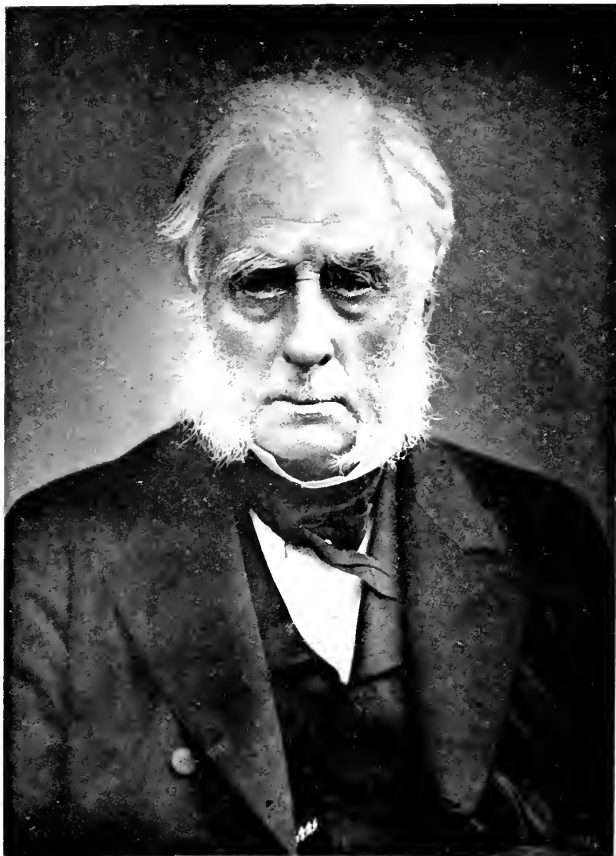
The thanks of the members to the authorities of the Gardens for their kindness in permitting the meeting, Mr. Bruce Findlay, and to Mr. Grindon for his admirable address, were moved by Councillor SHERRATT, seconded by Mr. BARLOW, and carried.

Mr. GRINDON responded, and offered to go through the Greenhouses with the members.

The death of Mrs. Roby, one of the Council of the Society, having been announced, Mrs. LEECH, in a few appropriate and touching words, proposed that a vote of sincere and warm sympathy should be forwarded to Mr. Roby on this sad event. Mr. IRLAM seconded the motion, which was carried.

The thanks of the members to the Ven. Archdeacon Anson for presiding at the address and the meeting were heartily given, on the motion of Mr. PARKER, seconded by Mr. BALMER, and supported by MESSRS. SHERRATT and IRLAM and Mrs. LEECH, who, in doing so, urged the members to do their best to obtain a large accession of new members.

The ARCHDEACON responded, and the meeting closed.



De Vouchère

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

MANUFACTURING PROCESSES IN RELATION TO HEALTH.

By J. T. ARLIDGE, M.D., F.R.C.P. (London), Milroy Lecturer at the College, &c.

[Delivered to the Members, and the Members of the Manchester Statistical and other Societies, in the Memorial Hall, October 2, 1889.]

IN response to a courteous invitation from your able and zealous secretary, I have undertaken to say something respecting manufacturing processes generally in their relation to health.

It will be clear to every one of my audience that I cannot attempt an exhaustive review of the subject in the course of a single lecture. Manufacturing operations are well-nigh countless, and almost all of them present some one or more features peculiar to themselves, which may exercise a distinct influence upon the health of those engaged in them. But although this particularity exists, the various modes in which occupations affect health are reducible to a comparatively small number, and admit of classification.

Before, however, I proceed to show this, I will introduce a few preliminary remarks. In the first place, I would say that the observation and recording of the consequences of manufacturing processes, and of the mode by which those consequences are brought about, have been greatly neglected in this country. This is the more remarkable, inasmuch as this kingdom stands foremost among the nations of the world in the variety and extent of its manufactures, and consequently supplies the best field possible for investigation.

Exhaustive inquiries have been made relative to most known causes of ill-health affecting the community at large, but very few respecting those associated with employment, although the latter, when looked for, are as patent as the best-known factors of disease. Another general remark I would make is, that the estimation of the effects of any occupation is not easily arrived at. A large number of instances is requisite for a statistical

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basis, and we must be sure that those selected represent labour of a like kind and having similar general sanitary conditions.

It is not enough to collect returns of sickness and mortality of people occupied in a given form of employment, described popularly under a general appellation, making, as, for instance, of textile workers, cotton, linen, or woollen fabrics; or, again, of potters or metal artisans; for we all know that in a worsted or cotton mill or a linen factory a variety of processes goes on, dissimilar in sanitary conditions. Hence assertions respecting the health aspects of a manufacture as a whole are not to be relied on. If this be true of textile factories, it applies still more forcibly to the other trades quoted in illustration—the occupations of potters and of Sheffield and other artisans making metal goods.

Again, when we have satisfied ourselves that a certain disease or class of disease prevails in a manufacture, we shall better comprehend its production and consequences by comparing the sanitary features of that occupation with others marked by the presence of similar disorders.

Another point to bear in mind is, that almost, if not quite, without exception, several causes co-operate in manufacturing processes to bring about the ill consequences to health observable in connection with them. Some such causes are inseparable from the occupation, and may be called *intrinsic*; whilst others are merely accidental or *extrinsic*. Therefore, to arrive at the just value of observations on the health-results of any employment we must distinguish those necessarily belonging to it from those accidentally present; or otherwise we shall hold it chargeable for disasters of which it is really innocent. Now these *extrinsic* circumstances of an employment, as affecting its healthfulness and its mortality, are very numerous, and some of them of considerable energy. I will content myself by stating the most important. The proportion of young to old, and that of male to female, distinctly affects the ratio of sickness and mortality. So likewise do the habits and modes of life of the employed, the sanitary state and surroundings of their homes, the locality of those homes and of the factories themselves, whether in crowded towns or in the open country; and, in short, the multitude of general conditions affecting health which sanitary science has made manifest.

To come now to those circumstances of manufacture which at the present time appear practically inseparable from it, we may at once recognise that there are some that attach to several occupations, whilst others have a more limited range of action. With this fact before us, we can see our way to constructing groups of occupations operating prejudicially upon health by similar agencies; and then, by noting what these agencies are, we perceive they are to be found either in the materials

employed, or in the processes and instruments used in manufacture and essential to it. Of these two divisions of the subject the former is by far the more important.

I must here notice that the consideration of the health aspects of mining, both as to raising coal and the ores of metal, forms no part of my present business. Not by its deficiency in interest and importance, but because it is far too extensive for the compass of this lecture, and has few direct relations to what we understand by manufacturing processes.

There is yet another topic that rightly belongs to an inquiry relative to the health incidents of trades—I refer to accidents occurring in their pursuit. However, this again is one I feel obliged to omit.

Let me now point to the table showing a classification based on the most prominent causes of disease to be found in connection with manufacturing pursuits:—

CAUSES OF INDUSTRIAL DISEASES.

- | | | |
|-------------------------------------------------------------------|-----------------|-----------------|
| 1. Dust | { Organic | { Animal. |
| | | { Vegetable. |
| | { Inorganic | { Non-metallic. |
| | | { Metallic. |
| 2. Poisonous materials | { Non-metallic. | |
| | { Metallic. | |
| 3. Noxious vapours | { Animal. | |
| | { Vegetable. | |
| | { Mineral. | |
| 4. Excessive temperatures | { Heat. | |
| | { Cold. | |
| 5. Electricity. | | |
| 6. Atmospheric pressure | { Increased. | |
| | { Decreased. | |
| 7. Conditions affecting the special senses. | | |
| 8. Overuse and overstrain of parts of the body. | | |
| 9. Exposure to infectious or contagious diseases or to parasites. | | |
| 10. Occupations fraught with accidents. | | |
| 11. Sedentary employment. | | |

As I lately observed these causes, when examined, are found to exist either in connection with the materials employed, or with the mechanical or physical agents or appliances resorted to in the details of manufacture. By adopting this division of the subject in hand, I shall be able to convey a general idea of the health aspects of manufacture; whereas, to discuss *seriatim* the array of causes of trade diseases set forth in the table placed before you, and to indicate for each trade how they severally act, would be the business of half a dozen lectures, and not of one.

To follow the course of proceeding just now intimated, I have to consider the sanitary bearings of the materials used in manufacture. These materials occur in every physical condition—solid, liquid, vaporous and gaseous. Those of a solid nature also occur in every diversity of form—earthy and metallic,

of vegetable and animal fibre, of solid wood, ivory and shell, bones and hides. In the course of manufacturing processes many solid matters undergo changes in their physical form; but these, for the most part, will be best treated of in the subsequent divisions of my subject.

I shall take in turn mineral, vegetable, and animal solids, whether non-poisonous or poisonous. But of each and all, their injurious effects are almost exclusively exerted when in the form of dust. They may be employed in a state of powder or may evolve dust in the process of manufacture.

Mineral substances are sources of dust from the primary stage of getting them from the mine or quarry. Colliers, iron-stone miners, and quarrymen suffer by the inhalation of the dust generated by their work; and when poisonous ores, such as lead or copper, are worked, the danger of poisoning is added to the other evils of the occupation. But as mining operations are not now under review, I will pass on to the consideration of the metals after their extraction from the ores.

That most useful, but, alas! poisonous, metal, lead, is a cause of illness, both in its metallic shape and also when, by chemical affinities, it is converted into its salts. The handling of metallic lead is a cause of lead-poisoning to plumbers, to file-cutters, and occasionally to other labourers. Water, beer, cider, and other liquids in contact with it, take up so much of it as to acquire poisonous properties, and produce "plumbism" among those who drink them. The sad consequences of the salts of lead are especially witnessed with house-painters, enamellers, floorcloth-makers, colour-makers, and those who use glazes made of lead—usually in combination with borax: as, for example, those workmen in the pottery manufacture, who, by a proceeding called "dipping," put on the glaze or enamel of earthenware and china. Omitting minor occupations, it is enough to mention another trade where workmen are subject to lead-poison. I refer to flint-glass making and polishing.

It might alarm my lady audience to unfold the secret of the composition of some articles of the toilet—to hint that some cosmetics and hair-dyes are not free from lead in solution, and that even textile fabrics now and then contain lead salts in the colours they are dyed with, and that a reprehensible use of white lead in powder has been discovered in lace imported from the Continent.

Metallic iron is in itself innocuous, but in the shape of dust generated by the process of grinding, as seen in the manufacture of cutlery, it becomes the source of serious disease by its highly irritating mechanical action on the lungs. This, its injurious action, is unfortunately too frequently exhibited among the Sheffield cutlery grinders, by the production of a form of consumption.

Copper produces less disorder among those who work with it than might be imagined. Still it shows a baneful action among coppersmiths and copperfounders in the form of colic, of chest-irritation and shortness of breath, besides staining the hair and the gums green. When it is combined with zinc to form brass, its evil energies are likewise manifested by the production of chest-troubles, and of peculiar nervous symptoms. In years gone by, when artisans were more careless than at present, and work conducted regardless of sanitary laws, a disease prevailed among brassfounders known as "brassworker's ague." Happily this curious disorder is now-a-days rarely witnessed.

Zinc is a metal which may be said to be generally innocuous. Still, there is a contention among medical observers as to how far the zinc, when thrown off in snowy clouds of oxide on being mixed with the copper in brassfounding, is concerned in developing the symptoms just now referred to in connection with that proceeding.

Arsenic is a metal which, in all its combinations, is highly poisonous. Unfortunately the brilliant hues of its salts recommend them as colouring agents. Hence it is that they are resorted to by the manufacturers of wall and other coloured papers, and by makers of artificial flowers and fruits. Arsenic is likewise a frequent component in glassmaking, but here its injurious effects are almost, if not wholly, obviated by the fact that it vaporises with strong heat; and considered chemically, the question therefore arises if the arsenic can serve any real purpose. But, unhappily, no doubt exists as to its pernicious consequences when used in paper-colouring and in artificial flower-making, nor—must I forget—in the making and using of flypapers.

Mercury is a metal that, by its physical condition, stands midway between solids and fluids. Even without heat, mercury gives off vapour, which is not without possible evil consequences to those exposed to it. But in most of its applications the metal is also handled, as in silvering mirrors. Happily the old process of silvering by the medium of quicksilver is being displaced by a simple new one, whereby a thin coating of silver is deposited directly upon the mirror by chemical agency. The several salts of mercury also have their use in the arts by reason of their colour, as, for instance, vermilion, which, like all its other compounds, is replete with poisonous qualities.

Quitting this brief notice of true metals employed in the arts, I pass on to those compounds of the earthy metals—clay, flint, sand, and lime. You will forgive me for the elementary information that clay is the material required for the making of pottery. Yet, this statement is quite correct when we are called upon to make common red ware—flower-pots, crocks, and the

like; but it is not equally true when we have to produce earthenware and china for table use and ornaments. Because, in this case, the potters have to go to Dorsetshire and Devonshire for their material; and this, when we come to analyse it, is found not to be clay, as commonly understood, but chiefly to consist of decomposed granite, and therefore to be rather a silicious or flinty substance than an aluminous one. So much the worse for the potters who have to use it; for silicious dust appears to be more injurious to lungs when inhaled than well-nigh any other dust in use. The evidence of this fact is furnished by the prevalence of asthma and potters' consumption. A very dusty business is cement making, but the dust arising from the calcined mixture of clay and lime is less pernicious than might be imagined. Nevertheless, it has its effects in producing shortness of breath and bronchitis among the workpeople who pursue the occupation for a long time.

This brief notice must suffice for mineral matters. I now press on to the other solid materials used in manufacture. The most important of these are such as possess a fibrous character, and are convertible by textile operations into tissues of a vast variety of forms and consistence. In this essentially textile city, and before an audience so well versed in the art of spinning and weaving, it would be presumption on my part to enlarge upon the characteristics of textile manufacture. Suffice it to say, that the fibrous solid materials are, from a broad general survey, subjected to manufacturing operations of a similar character, and that what unhealthy consequences soever follow from those operations are due to the dust generated thereby. Further, that the evils of dust attend almost exclusively the earlier processes performed with the purpose of developing the fibrous texture of the material, and cleansing it from extraneous substances. However, silk, wool, and cotton, and linen, do not stand on the same footing with regard to their sanitary features. Few ills attend the manufacture of silk, and those few are almost confined to the waste-silk business. The so-called silk waste is mixed with a considerable amount of extraneous matters, which have to be got rid of by washing; and by the repeated action of combing machines. The working of these machines causes the throwing off of considerable quantities of dust, but, as the machines are for the most part enclosed, little dust escapes into the workroom, excepting when, from time to time, it is requisite to open them. The other animal fibrous material is wool; and happily its manufacture—the making of worsted, and of woollen cloth—is chargeable with only small inconveniences. Wool fibre is strong and not brittle, and possesses a softness that allows its spinning to proceed with little friction and little dust. Moreover, as is well known, in the making of woollen yarn, it is necessary to keep the threads moist. The only serious drawback in

the woollen trade occurs when foreign fleeces, of a foul quality, and laden with contagion, have to be handled by sorters and others, and prove the source of that most serious and usually fatal malady known as the woolsorter's disease. Both the character and cause of this disease are now so well ascertained, that the mode of preventing it remains the only problem, and one certainly within the compass of sanitary science to solve.

I now come to cotton, about which all here will know more than myself. You will admit that, except in the stages preparatory to spinning, there is scarcely any dust given off; and that, even in those, the precautions taken to prevent diffusion succeed in reducing its production to a minimum. At the same time, when we turn from viewing the beautiful machinery for making the yarn to the weaving process we encounter less favourable sanitary conditions; for it is in this department we find the very objectionable processes of sizing and of steaming—processes assuredly detrimental to the comfort and health of the weavers, and tending to cut short their term of life. Only recently, Parliamentary measures have been introduced for the purpose of limiting those injurious operations, and I hope that experience will speedily justify their introduction. The heat and moisture of the shops, the deprival of fresh air from outside, the exhalations from the size and its contained ingredients, combined with the clay dust, engender conditions most detrimental to health. Moreover, let me add, as a fact of wide application, that all forms of labour of an unwholesome and dangerous character not only sacrifice the health but also the *morale* of those engaged in them.

The last textile manufacture I shall mention is that of linen. In this business the material itself (the fibre from the flax plant) exceeds all other substances used in textile processes in its powers of evil. There is a hardness and brittleness in flax fibre not seen in silk, woollen, or cotton. Hence the dust from it proves more irritating to the throat and lungs than either of the other materials in question. Its powers of bodily injury obtain in its earliest stage, when it has to undergo in flax mills a process of beating, to separate the fibres from the associated woody substance; and they continue in full energy in the subsequent operation of heckling, whereby the fibres are cleansed and drawn out preparatory to being dealt with by spinning and other machines. The preliminary processes of the linen manufacture are consequently attended by the generation of much irritating dust, which produces shortness of breath, or asthma, with more or less bronchitis and a wasting of the body resembling what we see in pulmonary consumption. But the weaving of linen has this advantage over that of cotton—it can be carried on with a free admission of air into the sheds.

Here I must leave the examination of solid material employed

in manufacture, and turn to that of fluids. Few observations are necessary respecting this section of my subject, inasmuch as fluids, when they do not act as immediate irritants to the skin, operate principally by giving off vapour—a subject belonging to my next division. Those exposed to the direct action of liquids are, for the most part, dyers and chemists. The former frequently employ dyes which are intrinsically of a poisonous quality, but, happily for them, the skin is a most resistant medium to their absorption. What they most suffer with is skin eruptions, annoying rather than dangerous. The chemist who deals with acid and caustic materials, as a matter of course, gets superficial and sometimes severe external injuries; and when substances throw off acrid vapour or gases the results may be still more serious, if not fatal.

These remarks bring one to the subject of vapours, which, for the most part, are obnoxious to the sense of smell, even if not otherwise hurtful. As examples of vapours of a positively injurious character, I may mention those of phosphorus and of bisulphide of carbon. Phosphorus, as we all know, takes fire when exposed to the air, and throws off dense fumes of phosphorous acid. It is used for various purposes in the arts, but chiefly in the manufacture of matches. Soon after the secret of compounding phosphorus with chlorate of potash and other ingredients, so as to make a mixture lighting upon friction, was discovered, it was observed that the people employed in the factories suffered with a remarkable and serious disease of the jaws, affecting the bones and destroying them. This circumstance was sufficiently grave, both to manufacturers and their employes, to stimulate researches to discover a remedy; and, happily, some few years since it was found that phosphorus in another form, namely the amorphous, could be used for match-making, with very little danger to those exposed to its fumes. This happy discovery has deprived the business of its horrors, and affords an excellent illustration of the value of scientific inquiry. The other element mentioned, namely, the *bisulphide of carbon*, is an essential material in the art of vulcanising. It is a pungent, exciting substance, acting strongly on the nervous system, and ultimately shattering the vital powers.

Again, we have a host of manufactures generating disagreeable if not positively noxious vapours, which may be classed under the general term of stinks. Such vapours proceed from calcining metals, from bone boiling, the making of artificial manures, cement, and of soap, of alkalies and chloride of lime, and a host of other trade products great and small. The general outcome of inquiries respecting the malodorous occupations is, that their effects on health are not very pronounced, and especially among those actually engaged in them. Outsiders complain of nausea, loss of appetite, headache, feeble health, and

other grievances; and, doubtless, for the most part, not without reason. Exposure to gases in the course of employment is oft-times a most serious matter, as experience shows in the case of men occupied in well-sinking and in mining, in those engaged in sewer work, and in various chemical processes, such as the making of sulphuric acid and bleaching powder, chloride of lime, and in those engaged in the manufacture of gas. But I must not linger on this topic.

It remains for me to notice a rather long list of surrounding morbid conditions associated necessarily or only incidentally with manufacturing operations. But after having so long detained you by my previous remarks, the notice must be very brief. The first and most prevalent of the conditions in question is exposure to heat, an attendant circumstance of many occupations, but happily not of very serious moment. Dry heat is borne with great impunity by the human body, but lesser degrees of heat accompanied by moisture are not so innocuous. One consequence common among those working in high temperatures is a proneness to suffer rheumatic affections, and inflammations of the chest; sufferings, however, rather due in a majority of cases to indiscreet exposure and indulgence in stimulants than to heat acting alone. Working in strong light for prolonged periods is a trial to the eyesight, and at times productive of permanent injury to it, but, so far as I can make out, not to the extent that might be anticipated. In the use of gas we meet with an injurious combination of heat and light, and too often with defective ventilation superadded. There is, in fact, great room for reform in the burning of gas. Much more is turned on than can be consumed in the production of the light required, and the consequence is the generation of unnecessary heat and the fouling of the air with the products of combustion. I would apply these remarks especially to warehouses and workshops. Noise is an accidental accompaniment of several occupations, and may be the cause of injury to the organ of hearing. I cite as examples the business of boiler making, and in a less degree that of engine fitting. Boiler makers are notorious for the prevalence of deafness among them.

Exposure to weather is a widespread condition of employment. It is seen in the case of outdoor labourers, farm servants and gardeners, of bricklayers, and many other workmen that your knowledge of occupations will bring to your mind. The category of diseases consequent upon exposure is so extensive that I should have to enumerate to you the majority of the ills to which flesh is heir, a proceeding I am sure you would deprecate. Friction, strain, overuse and prolonged attitudes are among other conditions of manufacture; and their consequences are seen in more or less bodily deformity, in the production of local thickenings or bosses, and of contractures of joints, and in

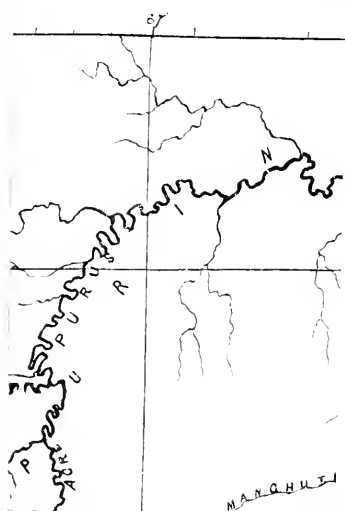
weakening or restraining movements concerned in bodily functions; for example, where the attitude embarrasses the free movements of the chest, and consequently the freedom of lung action. This last-named occurrence opens up the whole question of sedentary labour in its connection with health, a topic ample for an entire lecture, and, therefore, not to be compressed in the closing paragraphs of that which I have had the honour of delivering to you.

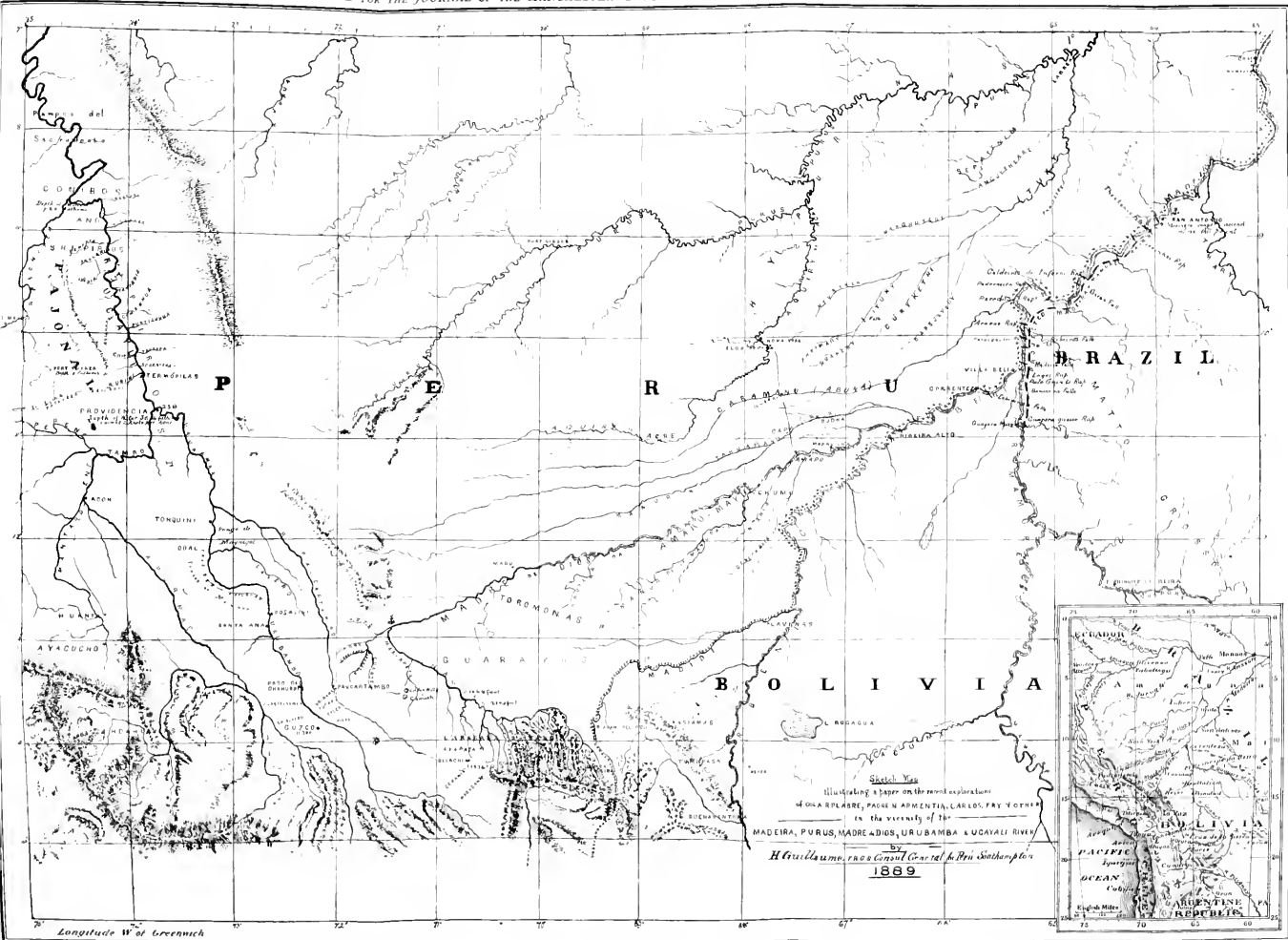
In concluding it I must make apologies for its shortcomings. The subject was too wide for complete elucidation, and it is one that scarcely admits of pictorial illustration or of rhetorical adornment. Indeed it is particularly prosaic; and in order to bring in ever so slight reference to the more important occupations of a great manufacturing country such as we are proud of, it became necessary to condense matter and to curtail sentences with the effect of making it still more prosaic.

The members of the Geographical Society will admit I have travelled over a wide area in the ever-widening world of manufacturing activity; whilst all others present will, I trust, recognise in what I have said a profound desire to convey to them a correct impression of the sanitary aspects of the manufactures of Great Britain, which, by their magnitude, lay claim to our attention and interest, from whatever point of view we regard them.

The Slave Trade in Africa.—A correspondent writes: "It will come as a surprise that between Johannesburg (Transvaal) and the sea there are to be found slaves, stockades, slave markets, and men base enough to avail themselves of the trade in humanity. While travelling to Delagoa Bay, a short time ago, I received an intimation that a gang of white men of various nationalities were located in the Bomba Mountains, in the vicinity of the Umbulosi port, and that they were engaged in a traffic in native boys and girls. While scarcely crediting the statement, I determined to inquire into it, for the purpose of exposing it in the press. Accompanied by one white man named Wilson, together with a well-tried and trustworthy native, I turned my bridle westwards, and after two days' travel over the wooded plains of Tongoland, struck the Bomba Mountains, where I was received with hospitality by the natives, who earnestly warned me to abstain from meddling unless I wished to taste the vengeance of the desperadoes. Disregarding their warning, I rode on that evening and sighted the stockades of the slavers. On drawing near I perceived among the stones on either side of the road the suspicious-looking tubes of half-a-dozen Martini-Henry rifles. Notwithstanding these I rode steadily on, and in a few minutes found myself face to face with two or three exceedingly dirty white men and a dozen or so stalwart natives. There was an implied challenge in the 'Well!' with which they greeted me. Dismounting with every sign of friendliness, and leaving the horses with Munyosi, I approached them, and entered into general conversation. The justifiable suspicion with which they regarded me was not to be easily removed, and it was only by diplomatic and stealthy advances that I obtained a half-muttered promise that if I really wanted a nigger boy or two, they might, as a great personal favour, supply them. Girls, however, they assured me, were much more plentiful." The writer goes on to say, "A mounted Basuto galloped up and announced that his master, a Dutchman, named Potj-cter, would be there that night for the purpose of purchasing a boy. I remained long enough to see the purchase effected, and the boy move off fastened to the leading-string of the front yoke of oxen in the Dutchman's wagon. Making an excuse, I saddled up and moved off with my attendants, followed by the threatening scowls of the men-hunters."—*Manchester Examiner and Times.*

BY PERMISSION OF THE





AN ACCOUNT OF THE TRAVELS OF COLONEL
A. R. P. LABRE, CARLOS FRY, AND OTHERS, IN
PERU AND BOLIVIA—

AND ON THE BOTANY, NATURAL HISTORY, ETHNOLOGY, MEANS OF
COMMUNICATION, AND THE GEOGRAPHY OF THE DISTRICTS
TRAVERSED. (*See Map*).

By the CHEVALIER H. GUILLAUME, K.C.C., F.R.G.S., Consul-General for Peru
at Southampton.

[At a Meeting in the Library, Friday, October 11th, 1889.]

HAVING been invited to impart the information I have received respecting the recent explorations in Peru and Bolivia by Col. A. R. P. Labre and others, I willingly give you all that lies within my power.

Very little information has been published respecting the interior of these countries since the important travels of Mr. Clements R. Markham, C.B., and Mr. W. H. Bates, some thirty years ago.

The failure of the scheme to construct a line of railway to avoid the tremendous rapids on the Madeira river has recently led to the important exploration of Col. A. R. P. Labre, of Brazil, and Señor Padre Nicolas Armentia, of Bolivia, to find a practicable means of communication from the interior of Bolivia and Peru. I will endeavour to be as brief as possible in describing the results of these explorations, commencing with those of Colonel Labre:—

It is interesting to note that this intrepid traveller has succeeded in achieving what Mr. W. Chandless endeavoured to do in his journey to these parts in 1865.

Colonel Labre, between the years 1872 and 1885, endeavoured to open communication from the Purus to the Beni. He explored the river Ituxy and its affluents several times, and he has supplied us with new geographical information respecting it. In 1884 he took two steamers up to the mouth of the Curykethé, 200 miles from the Purus, and established several india-

rubber stations, which are still in existence. He received great help from the Hypurina nation in constructing a road. Unfortunately his efforts to reach the Beni were unsuccessful, owing to the hostility of the Indians when near the Abuna river; he therefore resolved to attempt an overland journey from the Madre de Dios to the river Acre, or Aquiry. In 1887 he left San Antonio, on the Madeira river, which forms the boundary between Peru and Brazil, and after a very tedious journey he arrived at Villa Bella, situated at the entrance of the Beni river, after having travelled 161 miles, which occupied no less than 34 days. As an instance of the difficulties experienced, I may mention that the passage of the Ribeira Falls, a distance of only three miles, occupied eight days. The cost of transit of goods is very great, being 35s. 6d. to 52s. 4d. per arroba (25lb.). From Villa Bella he continued his journey, and passing the Esperanza Falls he arrived at the mouth of the river Orton, where Dr. Vaca Diez has an indiarubber station, and he remained three weeks with him. The Orton river is navigable by steamer as far as the confluence of the Manuripy, a distance of about 300 miles. From thence he proceeded to Ribeira Alta, a rising town at the mouth of the Madre de Dios. He entered the Madre de Dios on the 1st August, and arrived at Maravilha, distant from its mouth 161 miles, on the 9th. Here Señores Marcaca and Mercier have a trading station. The Madre de Dios, being navigable by steamers, would be of immense advantage to Peru and Bolivia. From Maravilha he set out on the 11th, overland, with some of the Araonas Indians as guides, crossing the river Thauamanu at Budha, a tributary of the Orton, 270 feet wide, and following the course of the latter he arrived at Capa, $7\frac{1}{2}$ miles below the confluence of the Orton and the Manurini. This place is on the direct road from the Acre to the Madre de Dios, which terminates at Amapo. On the 24th he crossed the Abuna or Caramanú (Cara = *seringa*, Manú = *river*), a large fallen tree serving as bridge. On the 30th he had the satisfaction of reaching Flor de Ouro, on the banks of the Acre or Uaquery, where Señor Manuel Joaquin welcomed him with great hospitality. He thus accomplished his much-desired aim, and to him belongs the credit of being the first civilised man who has crossed the regions between the Madre de Dios and Purus. The route traversed between Maravilha and Flor de Ouro was 113 miles, but by a direct road it would be reduced to $92\frac{1}{2}$ miles. It would be an easy matter to construct a railroad between these two places, which, no doubt, would soon prove remunerative. Labre suggests that a road should be made from Correnteza to Guajara Miry, on the Mamoré (or Upper Madeira), a distance of 37 miles, to afford means for export of the produce of Matto Grosso; also the construction of a railway from Librea on the Purus, with a branch to Hamayta or San Antonio to Correnteza on the Beni. No costly works would

be necessary, as the left bank of the Madeira offers no physical impediments to its construction; while, on the other hand, on the nearer and more direct route along the banks of that great affluent of the Amazons there are innumerable difficulties. The country also is free from the malaria which is so fatal in the neighbourhood of the Falls of the Madeira.

NAVIGATION OF THE MADRE DE DIOS.

TRAVELS OF PADRE FRAY NICOLAS ARMENTIA, OF THE COLLEGE
OF MISSIONARIES OF LA PAZ, BOLIVIA.

Bolivia possesses immense territories, some imperfectly known and others completely unexplored, especially in the beautiful province of Caupolicán. Many large rivers traverse this exuberant region, all of which flow into the mighty Amazon, and afford to Bolivia a fluvial communication with the Atlantic. In consequence of the success of Padre Armentia in his former missions to the Araonos and Pacaguaras nations in 1881, he was commissioned by the Bolivian Government, in May, 1884, to resume his travels, on which occasion he navigated the Madre de Dios as far as lat. 12° 13', exploring the rivers Beni, Madidi, and Orton, returning to La Paz in August, 1886.

The first recorded expedition to the Madre de Dios is that of the Inca Yupanqui, who attempted the conquest of the Mojos with 10,000 Indians in *balsas*,* but scarcely 1,000 of them arrived at Mojos—the rest perished by war, sickness, &c. The second was that of Pedro de Candia, with 300 soldiers granted him by Pizarro, but he also lost a large number of his people. The third was made by D. Diego Alemán, who was taken prisoner and afterwards made a general by the Indians to fight against other tribes on the banks of the Madre de Dios. The fourth by Juan Alvarez Maldonada, a native of Cuzco, with about 250 soldiers and 100 horses and mules, who were all killed by the Chunchos with the exception of Maldonada, Diego Martin, and Simon Lopez. This expedition was undertaken to conquer the famous “El Dorado,” which we now know to be only a fable. The last expedition was that of Colonel D. B. Latorre, Prefect of Cuzco, in 1873, who was killed by the Sirineyros Indians above the juncture of the Inambari with the Madre de Dios.

Padre Armentia left La Paz the 29th of May, 1884, and reached Tumupasa on the 18th of July, where he remained until the 18th of September to obtain a crew, when he embarked at the port of San Buenaventura in a canoe with eight men.

* Rafts constructed of a light wood called balsa.

Although drawing only three feet of water, they grounded several times, owing to the difficulty in finding the true bed of the river. They arrived in 13½ days at the mouth of the Madidi, where the river increases considerably both in volume and current. The actual time occupied in navigating from the Madidi to the Madre de Dios was six days. He commenced the ascent of that river on the 16th October, and continued until the 14th November. He visited the Araonos Indians, and was well received by them. At the beginning of 1883 there were no trading stations established on the Madre de Dios, and the Indians possessed no such tools as hatchets, knives, shears, &c., of modern make. All this is now changed. He found trading stations for collecting indiarubber, &c., which have provided the Indians with tools, &c. He resolved to make an expedition by land, but this he found exceedingly difficult, as it was necessary to carry all their things on their backs, and for this purpose he employed the Hamapu, Maru, Buda, and Odoary Indians. On the 16th April he descended the Madre de Dios to Cavinaz, which occupied 15 days, arriving there on the 2nd May. He returned on the 12th June, accompanied by Antonio Gil and Don Antenor Vasquez, who wished to ascertain if the river they had discovered in the previous November was the Acre. They ascended the Madre de Dios, and in nine days reached Nuanua, from whence they proceeded overland to the river Orton, which they reached after a tedious march of 15 hours, although in a direct course it is only 8½ to 9 leagues distant. They were satisfied that the river was none other than the Orton. Returning to the Madre de Dios, accompanied by Antonio Gil, he continued the ascent of that river, and entered the district occupied by the Araonas tribes, with the object of founding a mission. They found the survivors of five tribes who had been nearly exterminated by scarlatina, three of whom were attacked by a horrible leprosy like elephantiasis. Señores Vasquez and Gil were much fatigued, and obliged to abandon further work. Padre Armentia remained until the following January, visiting the several tribes, and, in consequence of the heavy rains and floods, he returned to La Paz.

A BRIEF DESCRIPTION OF THE RIVERS

THE BENI.—This river has its source in the high cordilleras, near the city of La Paz, and flows through hilly country until it reaches San Buenaventura, situated 14° 30' S. lat. and 68° long. W. of Greenwich. From San Buenaventura the Beni runs through a plain about 780 feet above the level of the sea. The hills of the Sierra terminate here. The soil through which the Beni flows is composed alternately of sand and clay, which causes a continual changing of the river's bed, especially near the mouth of the Madidi. On account of the little softness of the soil the banks widen considerably in certain places—to as much as 1,950 feet—rendering navigation difficult,

especially during the three dry months, August, September, and October, when it is very difficult to recognise the true bed of the river. As the banks of the river are low they are subject to inundations, and in some seasons the roads from Reyes to San Buenaventura and Port Salinas remain impassable the whole year, the waters reaching up to the breast of the horses and cattle, and even rising as much as 6 feet, as in the years 1885 and 1886. There are in places isolated banks where the waters never rise, and here all kinds of animals take refuge. After receiving the waters of the Madre de Dios the Beni becomes a majestic river, and is navigable without interruption up to the Esperanza Falls.

THE MADRE DE DIOS has its source in the Peruvian province of Carabaya, and is formed by the rivers Tono, Piñipiñi, Cosñipata, Pilcopata, Marcopata, &c. It is remarkable that from its mouth on the Beni, for 280 miles, it receives no important tributary, with the exception of a small stream on its right bank, called the Manuripi, which flows between it and the Madidi. It is believed that the Madre de Dios has a course of 400 miles of free navigation; whilst the Beni has a fall of 1,000 feet spread over a course of 850 miles—the distance between La Paz and the Mamoré, where its height above the level of the sea does not exceed 500 feet. The Madre de Dios has the same or even a greater fall, extending over a course not exceeding 500 miles. For 300 miles from its junction with the Beni the fall does not exceed 260 feet, the greatest decline being in the remaining 200 miles, where there are many banks of shingle, which makes the navigation of its upper waters difficult. In flood time the waters rise 33 feet. Its tributary, the Manuripi, is only 162 feet wide at its mouth. The Genechiquia and Nuana are only streams about 48 feet wide, and fallen trees obstruct their course. From the Port Maru, as also from Chumu, to the river Manurini (an affluent of the Orton), there are from 22 to 26 miles of high land, with clear running streams. In the country lying between the Genechiquia and the Orton, for the first 8 miles, the land is subject to inundation, but beyond there is high land extending from 30 to 35 miles. Trading stations were not established on the Madre de Dios until 1883; now there are some three hundred men employed along this river.

THE ORTON, also called the Tahuamanu, Datimauu, or Turtle River, has not yet been explored to its source. It is formed by the Manurini, Tutsemanu, and Maitsemanu. Probably its source is between $10^{\circ} 48'$ and $12^{\circ} 30'$ of S. lat. and $66^{\circ} 20'$ to 70° long. W. of Greenwich. Its course is exceedingly winding, and runs parallel with the Madre de Dios at a distance of 20 to 30 miles, discharging into the Beni above the mouth of the Madre de Dios at $10^{\circ} 48'$ lat. The country through which it runs is very low, and is therefore subject to floods. High lands are only reached after fifteen days' navigation. It has a course of 480 miles from the Beni to the Sierra and has about half the depth of water of the Beni, and although narrow at its mouth it afterwards widens to 195 to 393 feet. Its course is obstructed by fallen trees. At a little distance from its mouth a bank extends across it, and in the dry season hardly allows the passage of canoes of small draught. The Manurini—one of its tributaries—abounds in fish, and in August, 1885, one was caught $1\frac{1}{2}$ yard long, its head armed with a spear 10 to 12 inches long and 1 inch thick at its base. There are immense forests of indiarubber on its banks. At lat. $11^{\circ} 36'$, the river is 327 feet wide and 39 feet deep, and on the north receives two affluents.

THE ABUNA.—The natives call this river the Uaicomanu. It discharges itself into the Madeira, near the Araras Falls. It receives on its right margin a river called Tsipamanu, signifying River of the Marayahu palm, on account of the abundance of that tree. The Abuna is larger than the Orton, and has large forests of seringá (indiarubber trees) on its banks. There are some falls on its lower part, near the Madeira, formed by the same ramifications of the hills which cause the falls on

that river. There are but few Araonas Indians, but many Pacaguaras. Since March, 1885, many Araonas have settled on this river, on account of scarlatina and catarrh being prevalent in their old settlements.

THE ACRE.—Respecting this river, the Brazilian traveller, Col. Labre, has, during the last few years, endeavoured, by the aid of the Hypurinas Indians, to open communication between the rivers Purus and Beni, but has hitherto been unsuccessful. Señor Armentia is convinced that the distance between the Madre de Dios and the Acre is not less than 100 miles.

THE INDIAN TRIBES INHABITING THE MADRE DE DIOS.

There are no tribes on its banks below the hilly country. The sabandija (small insect) which abounds in the lowlands causes them to be uninhabitable, and the Indians have their dwellings at least four miles inland, so as to be free from the attacks of this tormenting pest. On the right bank, between the Madre de Dios and the Beni, below the mouth of the Genechiquia river, dwell two small tribes of the Pacaguaras. There are two tribes of the same Indians between the Madre de Dios and the Orton. Their language is the same as the Pana dialect. Above Genechiquia, on both sides, dwell the Araonas, who occupy a large extent of country, but the principal group of this tribe is on the left bank. On the right bank, a little below the Vasquez rapid, are the Toromonas, between the Madre de Dios and the Madidi, a little distance to the north-east of Isiamas. The Guarayos are a tribe of fierce Indians, occupying both banks of the Madre de Dios and Madidi, and keep up a continual strife with the inhabitants of Isiamas and Cavinás. They use large burnt-out canoes. They imitate the whistle of the tapir, and so get near it and kill it. They make their women work like animals, using them as porters. Their knives are made of chonta-wood, and they weave long cotton robes, called *masamahi*, which are only worn on festive occasions; at other times they go naked.

They believe in a Creator, whom they call Baba-Buada, who they say is the wind (Utana), that he resides in the air towards the south. They say that he created the sky, earth, sun, moon, stars, and everything that exists; that he presides over the seasons and arranges the seedtime and the harvest. They make two feasts to him, one before seedtime and one before harvest, when they sing, dance, and drink day and night; drunkenness is, however, unknown. Besides Baba-Buada they have a great number of inferior gods: Juti and Mara-Edutzi, are gods of time.

Besides these savage tribes there are about 3,000 other persons occupied in the collection of indiarubber. The Orton was first visited by collectors in 1885, and Señor Doctor Vaca Díez was one of the first to explore it.

THE PACAGUARAS.—This tribe was formerly very numerous. There are now only one or two tribes on the Genesuya and Ivon. They also bear the name of Chacobos, and are in communication with others between the Beni and Mamoré. They have relations with the Cayuvabas. There are three families at Orton, but one of them was exterminated by the Araonas, in March, 1885. They also dwell in considerable numbers on both banks of the Madeira, Mamoré, and Abuna, and I believe that the Hypurinas on the Acre and Purus belong to the same family. The men dress in long robes made from the shells of the Biboci, stained purple; the women, however, go naked. They pierce the nose and lower lip, in which they insert a *tacuarita*, about the size of a penholder, ornamented with feathers at both ends. They possess netted hammocks, and cooking pots of all sizes, and jars for carrying water. They cultivate maize, plantains, yoka (*Jatropha manihot*), camote (*Convolvulus batatas*), aji (pepper)

and various kinds of sugarcane. They believe in a divinity, which they represent as a tiger's head, a pig, or some other animal, but they carefully hide their idols and religious rites from strangers. They call their god Papa-Guara, and his priests Roha. They hunt the greater part of the year.

THE TOROMONAS.—These Indians occupy the territory between the Madidi and Madre de Dios, between 12° 13' south latitude. The Araonas say that some of their tribes are fierce and that others are peaceful; they have numerous villages. Formerly they were friendly with the Isiamenos and Tumupasenos. It is believed that the assaults made on Isiamenos and Cavinás, in 1884, by the so-called Guarayos were in reality made by the Toromonas. To reach their territory it is necessary to ascend the Madre de Dios 240 miles, or go overland from Cavinás in a north-westerly direction.

THE GUARAYOS.—The name Guarayos fills the Araonas, Isiamenos, and Cavinenos with fear, but little is known about them. They navigate the headwaters of the Madidi and Madre de Dios in burnt-out canoes, 33 to 60 feet long and from 18 to 28 inches wide. They inhabit the Sierra, and the greater part of the plain between Isiamas and Cavinás, on the bank of the Madidi. The Araonas give the name Guarayo to all their enemies, and they use it to signify to kill.

THE ARAONAS AND CAVINAS.—These tribes have both the same idiom, religion, and customs. They live on the Manurijí, both banks of the Madre de Dios, the Orton, and even on the Abuna. The principal group now exists on the Orton. The Araonas have no burial-place, but are interred in their own dwellings. They have an innumerable number of abandoned villages. They have no canoes, and use rafts made of bamboo, for crossing rivers. In February and March, 1885, they suffered from an epidemic of scarlatina, which carried off about one-third of the people in some of the tribes, and nearly whole tribes in other parts of the country. Although so fatal to the Indians, the epidemic hardly affects Europeans, as the Indians do not take sufficient care of themselves. Some of these Indians are black and others red. Their diet is chiefly fish.

THE WOODS OF THE BENI, MADRE DE DIOS, AND ITS TRIBUTARIES.

The indiarubber; the cedar, red and white, for building furniture; the Palo Maria (*Callophilum Brasilense*), a wood which contains much resin, and is used in the construction of canoes—it grows to the height of 160 feet; the tajibo and tape, tall trees used for building; the acuayaco, or paquito, and estoraque are very lofty, large trees of hard wood, used for sugarmills, and yield aromatic resin, and replace pitch for boats; the nogal, the bark of which is used for staining; the jacaranda (*Bignonia Brasiliana*), or rosewood; the almendra (*Bertholetis excelsa*); the Brazil nut; and many other beautiful woods known to the Indians.

The palms are in great variety. Amongst them are the asahi (*Euterpe olcracea*), which yields a fruit of similar taste to the chestnut. The patava, sayal, or majo (*Enocarpus patava*): its fruit contains an abundance of oil of good quality; it is eaten with sugar, and is very pleasing and nutritious. The matacu and the cusa (*Attalea Humboldtiana* and a *Spectabilis*). The fruit is very oily, and is used by the natives to grease their hair. In a dry state it is used to coagulate indiarubber. The jipijapa, called also the bombonaje (*Carludovica palmata*), is used for making hats. Vegetable ivory palm (*Phitolephas macrocarpa* and *P. microcarpa*) is used for making buttons. The palla (*Bromelia*) is the best palm for making the roofs of houses. The piassaba, a palm yielding a fibre extensively manufactured into cables, ropes, brushes,

and brooms, being very elastic, strong, and more durable than hemp. The Moria-pinima, or tortoiseshell wood, the most beautiful wood in all Amazonia, if not in the world. The maçaranduba, or cow tree (*Mimusops cata*), one of the noblest trees of the forest—it stands from 180 feet to 200 feet, and 20 feet in circumference; it is a hard, fine-grained timber, with a valuable bark used for dyeing, yields palatable fruit and a milk resembling cream, which may be used for tea, coffee, and custards.

The botany of the region is exceedingly interesting, and in some respects unique.

Amongst the many plants of this region are the sarsaparilla, ginger, coca (*Erythroxylon coca*), vanilla, cinnamon, and the suyuyo, a soapy fruit used by the Indians for washing their hair, and the isiga, a small tree which yields an aromatic resin; the quina-quina, a larger plant, is also aromatic. The tamarind, the ajo-ajo, so called from its strong smell like garlic, is notable for the large quantity of potash it contains, which is used in the manufacture of soap and for refining sugar. It is a very large tree. The copaiba, noted for its oil, and the seibo and mapajo trees, which produce cotton in large quantities, and the caré plant, used to cure the sting of the serpent. The yuquilla, its root mixed with women's milk, is used to cure irritation of the eyes. The platanillo, similar to the plantain, stores up rain water, and by tapping its trunk about a litre of water can be obtained. The soliman (*Hura crepitans*), and the barbasco, the roots of which are poisonous, and when bruised are used to stupefy the fish in the rivers. The patillo, the root of which dyes like saffron. Bamboos of many kinds. Tobacco in large quantities.

FRUITS, &c.—The banana, pineapple, chirimoya,* sugar-cane, yucca (*Iatropa manibot*), papa (potato), camotes, convolvulus batatas (sweet potatoes), tomatoes, a kind of cherry called iudenú, many kinds of apples, the acaju (*Anacardium occidentale*), the fruit the size of a pear, the bark medicinal. The palta (*Persea gratissima*), the fruit, of a pear form, is very astringent and bitter.

The animals, birds, fishes, and insects, are chiefly—

1. ANIMALS.—The largest is the tapir, also called the anta or danta, deer, the peccari or wild hog, and rabbits. The black bear or bee-eater (*Myrmecophaga*, Linn.). The paca (*Cavia paca*) is very good eating. Some monkeys, pumas, black and various coloured tigers (*Felis concolor*, *Puma soroca*), jaguar (*Felis tigrina*).

2. BIRDS.—The mutum or wild turkey (*Curassow*, *Crax alector*, *Uraz*, *Pauxi*), the riva (*Ortalia momot*). Different kinds of partridge (*Ynambus*), pava or wild pheasant, the gray cienfiento, and many kinds of brilliant-plumaged parrots, toucans, ostriches.

AQUATIC BIRDS.—Batas, a kind of coloured stork, is very large. Many kinds of geese, the kingfisher, &c. The tapacare is a very large bird, which inhabits the vicinity of lakes, and has a large hard spur in one of the joints of the wings, which serves as an arm. The leke-leke has also the same provision. There are many kinds of herons and birds of prey. Snipes, widgeons, teal, storks, plovers, flamingoes, spoonbills, and numerous other waterfowl.

* The chirimoya (*Anona tripartita*) Hanke calls a "master work of nature." It would be difficult to name a fruit possessing a more exquisite flavour. Markham says it resembles spiritualised strawberries and cream. In Lima the chirimoya is small, often only the size of an orange, but in the interior it often attains the weight of 16 lb. It is of roundish form, externally green, covered with small knobs, with black network. The rind is thick and tough. The inside of the fruit is snow-white and juicy. Both fruit and flowers emit a fine fragrance. The tree is from fifteen to twenty feet in height.

FISH are numerous, the largest amongst them being the toro, which reaches 9 feet long, weighing 345lb. It has a grey back, with white stripes. The sache is a similar fish, weighing 200lb., with larger head. It is good eating. The pescado is the best eating, and is equal to cod or bream. There are many eels and turtles. Crocodiles.

INSECTS.—Bees in large numbers, mostly without stings, and many wasps, hornets, ants in great variety (*Esciton drepanophora erratica*). Spiders: The principal is the apasanca (*Migale aricularia*), which is larger than the hand can span. It is very venomous. Scorpions, crickets, glowworms, mosquitoes, sandflies, toads, &c.

THE INDIARUBBER TREE (*Siphonia brasiliensis*).—It has an erect, tall trunk, from 40 to 80 feet high, a smooth, grey bark, and thick, glossy leaves. The milk resembles thick yellow cream. The indiarubber is collected in small tin cups or tubes of bamboo, called "tichelas," which contain about half a pint. Incisions are made in the trunk of the trees by a small instrument called the "machadino," which punctures to a depth of lin. The sap when collected is smoked, by the burning of an oily nut (*Attalea Humboldtiana*), in layers on a wooden mould. The juice cannot be collected in wet weather or it is spoiled. Trees which yield a large quantity of sap often die the first year. Some yield 8½ gallons, some only 2 gallons. A man collects during the season about 625lb. The collection is suspended from August until January, lasting about six months or longer, according to the season.

The following barometrical and thermometrical observations were taken by Señor Armentia on the Beni, Madre de Dios, Orton, and their tributaries during 1885:—

	Place of Observation.	Thermometer (Centigrade) Average.	Barometer Average.	Wet and Stormy Days.
January ...	Beni, Madre de Dios	26° 8'	743	10
February...	Beni	26° 7'	743·4	15
March	Beni	25° 9'	744·6	19
April	Beni	26° 0'	745·2	7
May	Madre de Dios	23° 9'	744	7
June	Madre de Dios, Orton ...	21° 6'	746·2	1
July	M. de Dios and tributaries	23° 6'	744·1	1
August ...	M. de Dios and tributaries	24° 1'	743·4	2
September	M. de Dios and tributaries	26° 2'	743·8	7
October ...	Beni	26° 8'	743·4	16
November	Madre de Dios..	26° 8'	744·8	16
December	Madre de Dios.....	27° 2'	746·8	22

The storms are chiefly from the south and west.

The principal geographical positions are—

	S. Lat.		S. Lat.
Mouth of Madre de Dios	11° 06'	Mouth of the Orton	10° 48'
Mouth of Genichiquia	11° 22'	Mouth of Genesuya.....	11° 23'
Mouth of Nuanua	11° 32'	Mouth of Biata or Genejaya.....	11° 44'
Mouth of Manuripi.....	11° 45'	Mouth of Madidi.....	12° 33'
Vasquez Rapid	12° 38'	Isiamas.....	13° 32'
La Cruz	12° 56'	Port Salinas (de Reyes)	14° 17'
Carmen de Tahuamanu.....	11° 36'	San Buenaventura	14° 26'

In reference to these rivers a concluding remark may be made that they are all navigable, but separated from the Atlantic by the Madeira Falls. When these rivers are opened up, we shall have roads for commerce, which will give life and animation to the country. What vast riches lie unknown on their banks!—precious woods, medicinal plants, aromatic bark and resins, textile plants—in a word, the most exuberant vegetation, the most variable, at the same time the rarest, perhaps, on the globe. Immense tracks of land, where man finds in abundance all that life requires.

THE GOLD REGIONS OF CARAVAYA AND SANDIA.

The explorations of Colonel Labre and Señor Armentia on the Madre de Dios and the opening of that river to commerce will greatly benefit these remote regions. I trust the journey which Colonel Labre is at present engaged upon will be the means of providing us with much fuller information respecting these regions, of which we have heard little since the memorable overland journey of Mr. Clements Markham in 1869, to collect specimens of the cinchona plant. These provinces are situated in the most southern part of Peru, completely separated from the remainder of the Puno department by the elevated snow-capped Cordilleras, which seem to say to man, "Thus far shalt thou go and no further;" and it is surprising that the Spaniards in the early days dared to cross that colossal barrier, but it was solely due to their thirst for gold that stimulated these intrepid adventurers to traverse these tremendous obstacles which Nature has imposed. The earliest record we have of the discovery of gold in these provinces is very soon after the conquest of Peru, when some of the followers of Pizarro opened a rich mine called San Juan del Oro, where a town was founded. In 1553 the Viceroy, Don Antonio de Mendoza, found a nugget of gold at Quiaca, near Sandia, resembling in shape the head of a horse and weighing 122lb., which was sent to Spain as a present to the Emperor Charles V. In 1733 the Mint at Lima coined \$1,143,026 in gold, principally brought from Caravaya. In 1808 the Indians rebelled against the Spaniards and massacred them. From that time to the present the mining industry of these provinces has never recovered itself. At the present time but few mines are worked, and these in a very primitive way. The Indians wash placer* gold in the rivers, and obtain annually about two quintals, or about 3,250oz., which they dispose of at the fairs. Señor Antonio Raimondi, the eminent Peruvian scientist, has devoted much study to these regions, and their position, as shown on the map before us, is taken from his work.

* Placer means the detritus or bank of sand, &c., thrown up by the side of a river, also ancient bed of a river.

The reports of the engineers, Mr. R. G. Rosell and Mr. J. H. Simpson, published in Lima a month or two ago, state that gold exists in these regions to an unlimited amount. Access to the mines is very difficult on account of the steepness of the hills, the so-called roads being simply narrow tracks cut in the rocks or through the woods by axes, where mules cannot pass, and the only means of transport is on men's backs. Cattle in some of the districts is abundant, an ox or cow selling for \$10, and a sheep for \$1.

The climate in these districts is healthy, there being no extremes of heat or cold. The rainfall is very copious, and from November to March rain falls almost continuously. The evaporation is very considerable, owing to the low pressure of the atmosphere, more than 50 per cent returning to the air in the shape of vapour, while 5 to 6 per cent is lost by filtration.

Gold is disseminated throughout the whole of these regions. Mr. Rosell found from picked samples of ore taken at Ananea no less than 7,000oz. of gold per cajon ; * 1,800oz., 943oz., and 28oz. per cajon in other samples. The known quantity of auriferous lands in the Sandia province is 11,021 million cubic metres, and the estimated value of the gold in those lands is about £300,000,000 sterling. There are also mines of coal, copper, lead, marble, jasper, &c. The population of Sandia is 12,721, consisting of Indians, who are very peaceable and willingly work for the whites. The extent is 4,254 square miles. Carabaya is very scantily populated, containing about 8,000 people. The regions to the northward are unexplored and occupied by the savages.

There can be no doubt that the explorations already made by Colonel Labre and those he is still making will be of immense benefit to these regions by opening them up to the outer world, and it is to be hoped that the railway advocated by Labre will soon be constructed, joining the Madre de Dios with the Amazon. By the Inambari these provinces can be reached by passing overland 400 metres, or 1,281 feet, above the sea, whereas the present route across the Cordilleras is from 14,000 to 18,000 feet above the sea.

TRAVELS OF SEÑOR CARLOS FRY, OF CUZCO.

I now proceed to the travels of Señor Carlos Fry, of Cuzco. They refer to the Ucayáli and its tributary the Urubamba, which form the great artery to the interior of Peru. The Urubamba has its source at the foot of the Vilcanota Mountains, 16 miles from Santa Rosa. It is first called Vilcanota, then Sicuani,

* A Spanish cajon consists of about 3 tons Spanish, of 2,000lbs. each=6,000lbs., or about 2½ tons English.

afterwards Calca River, then the Urubamba. It flows through deep fertile valleys, on either side of which are continuous terraces,* on the slopes of the mountains, extending for hundreds of miles. In the valley are situated the city of Cuzco, the ancient capital of Peru, Pisac, Calca, Chinchero, Yucay, Urubamba, and Ollantaybamba, the ruins of which are probably contemporary with the giant cities of Bashan.

When we beheld the ruins of these and other cities, gigantic temples and fortresses, the immense irrigation works, and the extreme utilisation of the soil of which China and Japan alone afford a parallel, they testify to the former existence of a great civilised population, which could not have been less than 100 millions.

Señor Fry's travels were undertaken for the purpose of discovering accessible ports, to which roads could be constructed to form an outlet from these rich regions, and to find suitable parts for colonisation. After working one month constructing canoes, the expedition, consisting of himself, three friends, and the necessary followers, left Rosalina on the 28th October, 1886. This place is distant from Paso de Chahuares 14 leagues, which was famous for being the point of embarkation in 1847 of the expedition of Count Castelnau, Padre Bosquet, &c. The latter unfortunately lost his life in the expedition. Since then a road has been constructed to Rosalina, which has served for a starting point. They reached the port of Tonquini, or Sihuanira, on the 30th October. The passage of Tonquini is a gigantic fissure through the middle of a range of hills, and has the appearance of two colossal portals, through which the river flows. The series of rapids end here; from thence the river is called Lower Urubamba, and is navigable by steamers. In three days they had travelled, owing to the bends in the river, 120 miles, but by direct road by land from Rosalina to Tonquini it would only have been 60 miles. The journey down was a most perilous one on account of the rapids, and at the last one he had the misfortune to be shipwrecked and lost his scientific instruments, &c., and was obliged to adopt the garb of an Indian. They passed the river Laverio, which flows from the gold regions of Paucartamba, and a short distance off a long range of hills containing coal, called "Mapiruri" (stone) by the Campas. They left Tonquini on the 5th November, and arrived at Providencia on the 12th. This place is situated at the confluence of the Urubamba and Tambo rivers, which together form the Ucayáli. The geographical position is $10^{\circ} 41'$ S. lat., and is 861 feet above the sea level. The depth of the river is from three to four fathoms, and the current two knots per hour. The distance travelled from Tonquini was about 320

* Andeneria, or terraced gardens.

miles. The regions passed were quite a paradise, abounding in luxuriant vegetation, with lofty hills and sloping plateaus, and clear running streams. This description fully agrees with the account of Mons. Charles Wiener, the eminent French explorer, who writes: "When I entered the forests of Mayniqui I found myself in one of the most beautiful regions of the world." They had splendid sport, both fishing and shooting, and the climate was delightful. An Italian named Anto. Calnagui has a trading station here. There is also a settlement of the Piros Indians, who number about fifty. In consequence of some marriage festivities among the latter the expedition could not obtain canoe men, so, availing himself of the delay, Señor Fry resolved to explore the interior. The festivities over, they left Providencia on the 8th December, and reached the mouth of the Unini on the 10th. Here an important station is established, the Indians have roads leading to the interior, and it would be advisable to make roads following the same course as theirs, and so reach the capital by a short route across the Pajonal. On the 14th they reached the Pachitea, a very important place. Many commercial houses are established, and large steamers trade here regularly, though seven or eight years ago the place contained hardly a single hut. The river Pachitea was the scene of the massacre of Lieutenants Tavera and West, of the Peruvian navy, in the year 1866, by the Cashibos Indians, who ate them; but trade has civilised these Indians, and they are now as friendly and civilised as the Campas and other tribes. This river is navigable for steamers as far as Mayro, and has a depth from seven to nine fathoms. The remainder of his journey down the Ucayali was by steamer. Leaving Pachitea on the 23rd January they passed high lands with cattle, and on the 26th they passed the Pampas del Sacramento, an immense forest-covered plain extending over 180,000 square miles of virgin soil, the river being here half a mile wide and 20 fathoms deep. It was here they first experienced the insect pests—mosquitos and sandflies. On the 29th they entered the majestic Amazon, with a depth of 35 fathoms, and reached Iquitos at 10 a.m. on the 30th. Iquitos is the chief Peruvian port on the Amazon. In 1866 this place had only 1,000 inhabitants. Now it has a population of 8,000, five-sixths of which are half-caste and civilised Indians, the rest South Americans, Europeans, and a goodly number of Chinese. There are many commercial houses, each of which has one or two steamers all flying the Brazilian flag. The imports and exports amounted to \$2,000,000, the principal article of export being indiarubber. The distance they had travelled from Cuzco to Iquitos was almost 530 leagues, viz., 40 leagues by bridle paths, 190 by canoe, and 300 by steamer.

THE INDIANS.

The Indians of the Urubamba are as follows: The first they met were the Campas. They occupy the margins of the Urubamba and Tambo. They are very friendly with the whites, who have taught them trading, which has been the most powerful agent in civilising them. They greatly appreciate the blessings of civilisation. The Piros dwell on the Lower Urubamba and Upper Ucayali, as far as Sibunya. They are very peaceable, trading with the whites and working for them. As canoe men they are without rivals. The women dye the hands and feet black, to imitate the gloves and boots of the whites, with the hintoc root (*Genita oblongifolia*), which also cures eruptions of the skin. The Conibos and Shipibos dwell on the banks of the Ucayali. They dwell very extensively with the whites, and are very peaceable, appreciate civilisation, wear European garments, speak Spanish and Portuguese, and are very intelligent. They imitate the whites in exchanging visits. When entering their dwellings they offer one a seat and shake hands, drinking health with ceremony. But unfortunately they still retain some of their savage customs. They compress the heads of their children between two small boards, causing the head to assume a conical shape. The deformity of some of the skulls found in the ancient *huacas* (burying places) may be traced to this custom. Another barbarous custom is that of interring fretful children alive—the mother herself making a hole in the ground and burying them. If one of their family fall ill, they hold a council, and usually conclude among themselves that he will not recover, and make no effort to restore him to health. The gradual extinction of the aborigines of these regions may possibly be attributed to this custom.

Amongst the cultivated crops of the region of Urubamba and the Ucayali, as mentioned by Señor Fry, are—

The plantain (*Musa paradisiaca*). There are about twenty varieties. The yuca (*Manihot-aipi*), the root of which is boiled and eaten, or made into flour for bread, cakes, &c. Rice, maize, maní* (*Arachis hipógea*), sandilla or sandía (*Indicus melopepo*), coca (*Erythroxylon coca*). With the dried leaves of the coca plant and a little crushed corn the Indians will stand a surprising amount of fatigue—in fact, will go without food or sleep for days. The leaves are gathered and dried in the sun. The flavour is somewhat like green tea. It is now largely imported into Europe from Peru, and is manufactured into a drug called “cocaine,” and supersedes the use of chloroform for relieving pain. Tobacco, cotton, coffee, piña (*Bromelias ananas*). Pacae (*Inga ecra*) exists on all the banks of the rivers. The grapes are of immense size, Marañón (*Anacardium occidentale*) an excellent fruit, and the blossom yields a delightful aroma. Palta (*Persea gratissima*), papaya (*Caricapapaya*), oranges, citrons, lemons, aji (*Capsicus*), papa (*Solanum tuberosum*), llacón (*Polinnia sonchifolia*). Magona—similar to the potato, very floury—frejoles (*Phaseolus*), beans, achiote (*Bixa orellanum*)—used for staining the skin, garments, and pottery. Palillo

* Maní is a kind of small pulse, like East India “gram.”

(*Campomanecia cornifolia*) is used for the same purposes as the former, and grows spontaneously between the Tambo and the hills, in the vicinity of the Urubamba. Camote (*Batata edulis*). Sugarcane. Cusi, a kind of pumpkin. Tomatoes, cabbage, lettuce, parsley, and other herbs abound. Tumbo (family *Pasiñloraceas*), an immense creeping plant, producing an excellent fruit. Piñón (*Carya purgans*). Mandioca or cassava.

TREES OF THE FORESTS.—The indiarubber (*Siphonia dística*), which forms the chief industry of these regions, and is exported largely to Europe and North America, which has been a powerful factor in civilising the hordes of savages on the Ucayali and its affluents. The llanchama, the bark of which tree is made into hammocks and mats. Cedars, red and white, mahogany, vanilla, sarsaparilla (*Esmilax obliquata*). Yarina (*Phytelphas macrocarpa*) is very abundant, used for roofing of houses, the nuts of which, when ripe, are known as vegetable ivory, and are exported in large quantities to Europe. Matico (*Arthante elongata*). From it is made an excellent stomachic beverage, and it is also used as a balm for wounds. The huaco (*Mikania guaco*) has the same properties as the matico. Barbasco (*Taquinia armilares*), the bulbous root of which is bruised and thrown into streams, and stupefies the fish. Nogal (*Juglas*) is a hard wood, like teak. Capirona, a hard wood, used for fuel on the steamers. Quello-caspi (*Olmedea aspera*) is used for buildings and mills. Rumi-caspi, or stone wood, as hard as teak. Remo-caspi, used for making oars, cups, &c. Pona is split into laths and made into baskets, roofs, chairs, &c. Huitoc (*Genita oblongifolia*), used for staining the skin, and for skin diseases, erysipelas, &c. It contains more than fifty per cent of tannic acid. Sitica (*Secropia peltata*). The trunks are hollow and contain bees, and a great quantity of wax is obtained from these trees. There are many other trees which contain wax. Chambira (*Astrocaryum*), the shoots of which make strong twine. Chonta (*Bactrix ciliata*), used for making bows, mosquito nets, lances, harpoons, &c. Tarapoto (*Coricea ventricosa*), used for making canoes. Caña Braba (*Cinerium sagittatum*), used for poles, and the smaller shoots for arrows. Canela cinnamon. The bark is aromatic, and is used for curing dysentery. Cascarilla grows on the hills between the Urubamba and Tambo, and is a valuable febrifuge. The chamaïro, a cane, taken with coca and chalk, and mixed together, yields a palatable taste. The bombanaji (*Carludorica palmata*), used for making hats cigarettes, &c., exists in great abundance. Indigo. There are great clusts of these shrubs. The puca-puca (*Colorado*), used for dyeing red. Copal, used for its resin and for tarring canoes. Vegetable wax. There are many different kinds. Lagarto caspi (*Palo lagarto*), used for making canoes. The caimito and the guayaba, of the size of apple trees, yield exquisite fruit. The cocobolo, a black wood, which takes a fine polish. The bolaquiro, a very hard wood, used for mortars, and for grinding cocoa-nuts, sugarcane, &c. The chirimoya (*Anona tripetala*), a most delicious fruit. The maza-zamba, a similar fruit, but larger. The sapote (*Archras sapota*), a very sweet fruit. The pala de balsa. Balsa wood (*Ocroma de piscatoria*). The palo-balsams or estoraque. The chigalo, a palm which contains a nut, which, scraped and boiled well, produces a drink similar to cow's milk. Grandadilla (*Pasiñlora ligularis*). It is of a delicious taste. Ceucho-hapi, a shrub, which grows erect, and being very flexible serves for fishing-rods. The cinnamon, ipecacuanha, and camphor trees grow wild everywhere. The comalocso, a tree the bark of which yields the strong fibre used by the Indians for bowstrings. Piassaba is the fibre from the petioles of the palm (*Leopoldinsia*.) Gramalote or sorgho, of which there are many varieties used for fodder of cattle. Orchids of the softest tints.

It would be difficult to enumerate all the vegetable productions which grow on the banks of the Ucayali, Urubamba, and

Tambo, many of which, yet unknown, may be of great commercial value.

WILD ANIMALS, FISH, &c.—The danta (*Tapirus americanus*), the flesh of which is similar to beef. It is the size of a large mule, and can be domesticated. The huan-gana, or mountain hog, or wild boar, is always in herds of 80 to 100 animals. Its flesh is edible. The macoz o sihuayro is good eating. The quirquincho is caught in the hills. The vaca marina, or cow-fish, feeds on grass on the margin of the rivers, is found on the banks of the Ucayali. It resembles the seal, is 7 feet long and 6 feet round the body. Its flesh resembles pork, and a large one will yield 250lb. of fat. It has a semicircular flat tail, and behind the head are two oval fins, behind which are the breasts, which yield a white milk. The paiche is similar to the former, but smaller, and when salted affords an active trade on the river. The pirarucu (*Serrasalmo gigas*), a fish eight feet long. The charapa, or tataruga (*Podocnemis cepansa*), or river turtle, weighs from 100lb. to 126lb., and forms an abundant supply of excellent food. They are found in immense quantities on the beaches of the Ucayali, in the months of August, September, October, and November, when it comes from the water to deposit its eggs. The natives sell the eggs, and more often extract the oil, which is one of the chief articles of trade. The land tortoise, the flesh of which is excellent. The amjiri or pacho, a fish which weighs 40lb., and is salted, and many other fish. Very large deer roam on the plains and mountains, called huaucó or puca-taruka. They are very wild. The bear, called hocamari, which makes small stages on the trees. A kind of boa, yacu-mama, or mother of the water. The tiger has a golden yellow skin, with circular black or copper-coloured stripes. It is not fierce, and does not attack man. The jaguar (the yana-puma) is somewhat dangerous. If not killed at the first shot, often turns on the nearest sportsman. Pava, or wild pheasant; patos royales, or black ducks; geese, storks, plovers, &c. Birds of the rarest plumage, and butterflies of the brightest hues.

Señor Fry says: "Without mentioning more specimens, any person provided with a guu and a handful of salt may travel 400 miles without ever wanting food, from the abundance of game; and an Indian with his bow and arrow is able to furnish a meal better than like of which many people in civilised places would be too eager to obtain."

RAILWAYS WANTED TO DEVELOP THIS DISTRICT.

The most important railways required to be constructed to develop these regions are the following: (1) From Mayniqui to Rosalina, 240 miles, from thence to Cuzco. (2) From Acon on the Ene to Huanta, 112 miles, thence to Ayacucho. (3) From the Unini across the Pajonal to Tarma, thence to Lima, the capital. There are no serious obstacles from an engineering point of view to the construction of these railways. Mons. Wiener writes: "One asks with surprise why the proprietors of the rich Urubamba valley have not constructed a road following the course of the river, instead of imposing upon themselves the difficulties of crossing the bleak Cordilleras." For want of roads the goods to and from the interior are conveyed from the west coast by mules and on men's backs, at the enormous cost of from £40 to £80 per ton, according to the season and class of goods, consequently only the most valuable goods can be exported. The

goods are placed to a further disadvantage by losses sustained by weather, bad roads, &c., the mule with its burden being frequently precipitated into deep ravines, the poor animal furnishing food for the condor, and its valuable load irretrievably lost. Few, perhaps, are the enterprises of the present day that would prove so remunerative to the projectors as the construction of the railways alluded to, and would mark a new era of prosperity to these countries. There would be available for export, from the forests and plains, indiarubber, cinchona bark, coca, vanilla, sarsaparilla, tobacco, cotton, indigo, dyewoods, batsums, gums, resins, beeswax, coffee, cocoa, vegetable ivory, &c., and from the descending plateaus of the Eastern Cordilleras alpaca and other wools, hides, &c. From the mountains, gold, silver, copper, lead, diamonds, emeralds, and other precious stones.

The region best adapted for colonisation is the triangular basin situated between the rivers Tambo and Urubamba, comprising an area of 6,000 square miles, freely intersected by rivers, most of which are navigable, possessing means of communication direct to the Atlantic by the Ucayali and the Amazon, and as soon as the railways I have referred to are made, they would put the district into communication with Cuzco by Mayniqui, to Ayacucho by Acon, and to the capital by the Tambo and Unini rivers.

From the information I have been able to give, I think it is easy to understand what a bright future is in store for these countries, when by means of railways the interior will be connected with the navigable rivers, and these rich territories transformed into a scene of active commerce and placed in direct communication with the markets of the world.

CONCLUSION.

In conclusion, I may say that the Government of Peru and its people have but one aim, the development of their rich and beautiful country, which they have thrown open to the civilised world; and I trust the day is not far distant when the self-sacrificing efforts of these intrepid pioneers of progress—Raimondi, Labre, Fry, and others—will succeed in attracting to these vast regions, at present only sparsely populated by semi-civilised savages, the capital and enterprise of Great Britain. It is necessary, in view of the ever-increasing population of the British Isles, that every outlet which appears at all favourable should receive careful consideration; and I feel certain that if the claims of Peru were better known to Englishmen, they would readily avail themselves of the advantages that country offers.

HIS GRACE THE DUKE OF DEVONSHIRE,
M.A., K.G., F.R.S.,

The First President of the Manchester Geographical Society (see frontispiece to this volume).

THE DUKE OF DEVONSHIRE, president of the Manchester Geographical Society, unites in himself the claims of exalted station, of the highest personal character and public services, and of a distinguished academic career. For a eulogy of his grace as a member of the House of Peers or as a great landlord this is not a fitting place. It is as the president of a learned society that this brief notice regards him; and we may, therefore, with propriety, recall the brilliant honours which he won as an undergraduate of the University of Cambridge, and the great public services which in his long career he has since rendered in the cause of education and science.

As Mr. William Cavendish he entered Trinity College in 1825, and in 1829 he graduated second wrangler and gained the first Smith's prize, Mr. Philpott (now Bishop of Worcester), who was senior wrangler, having been beaten by Mr. Cavendish in the subsequent contest for the Smith's prizes. Mr. Cavendish also gained the eighth place in the first class of the classical tripos.

A University career of such marked distinction has been followed by an equally remarkable series of high academical offices. The Duke, as Earl of Burlington, was the first Chancellor of the University of London, holding that office from 1837 (the year of the foundation of the University) to 1856. In 1861 he was elected Chancellor of the University of Cambridge, in succession to Prince Albert. In 1870, on the incorporation of The Owens College by Act of Parliament, the Duke was chosen first president of the College under its new constitution; and in 1880, on the foundation by royal charter of the Victoria University, he was nominated in the charter to be the first Chancellor of the University. These three offices the Duke of Devonshire still holds; and, his advanced age notwithstanding, it is well known that his grace is never wanting to the interests of the institutions over which he presides.

Among many other services performed by his grace we may mention his conduct of the investigation held by the Royal Commission appointed in 1870 to inquire into and report on scientific instruction and the advancement of science. Of this commission the Duke of Devonshire was chairman. The commission, after an exhaustive inquiry, reported in 1872. That report, with the evidence collected by the commissioners, and the recommendations which they drew up, may be treated as the starting point of the great advances made in the last fifteen years in the higher instruction in science, in the establishment of public museums, and, still more recently, in the promotion of technical schools.

The Duke has never failed, when opportunity has offered, to promote institutions established for the advance of scientific culture. On the foundation of the Manchester Geographical Society he immediately gave the most valuable assistance, and we congratulate our members on having obtained his consent to act as our first president, an office which we trust he may long continue to fill.

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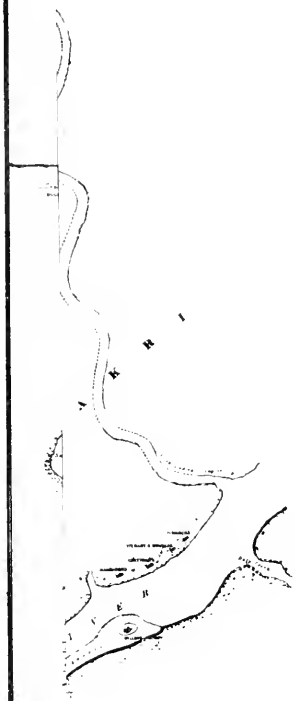
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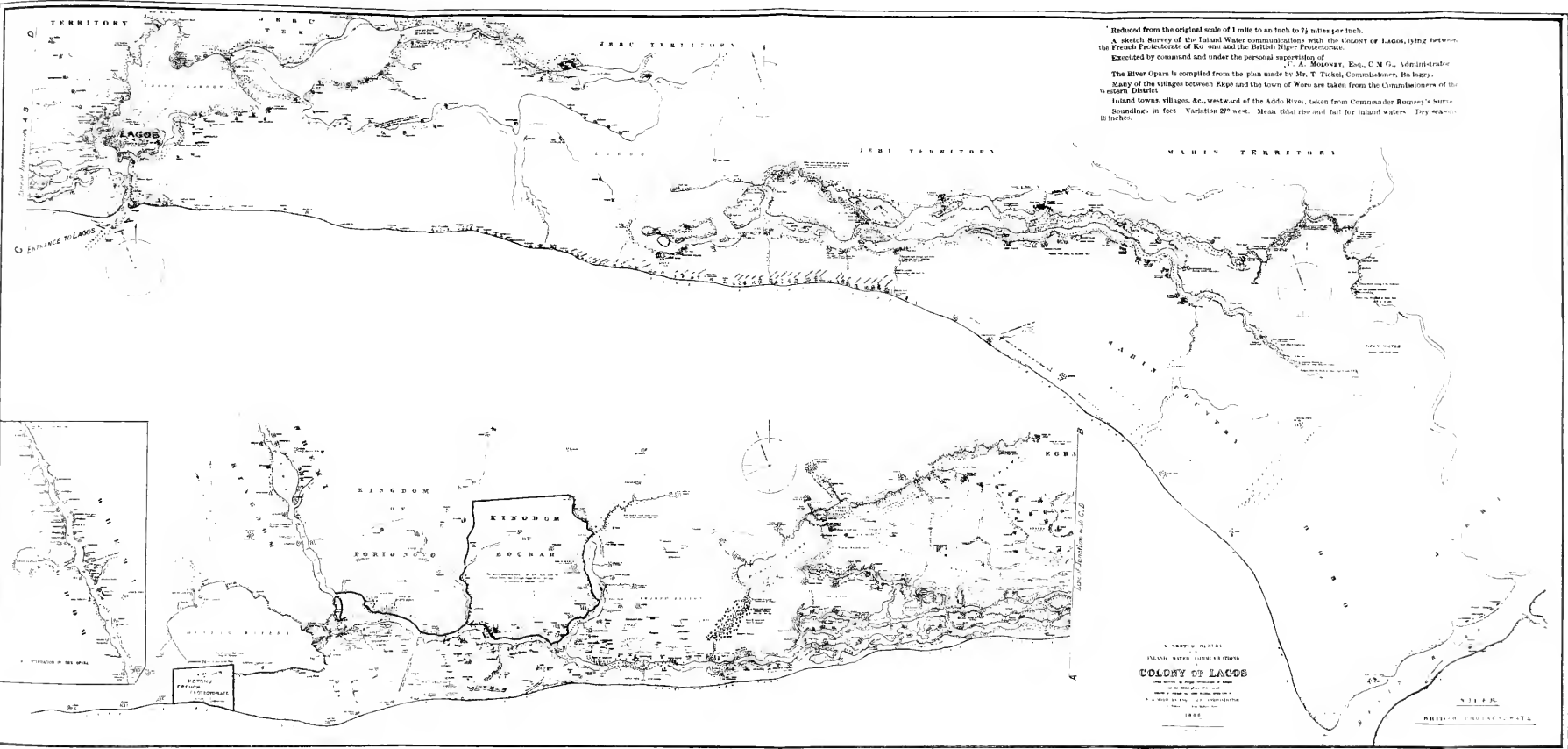
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THE PROLEGOMATA



THE LAGOONS OF THE BIGHT OF BENIN, WEST AFRICA.

By MR. ALVAN MILLSON, M.A., Assist. Colonial Secretary, Lagos.

[Read to the Members, in the Library, by Mr. J. A. Swanwick, Monday, December 16th, 1889.]

WHEN the Landers came ashore on the West African coast in 1830, on their celebrated expedition, which resulted in the discovery of the true mouth of the river Niger, they landed at the then notorious slave station of Badagry. Passing safely through the triple line of foaming breakers which continually rush in upon the open coast, they were, to use their own words, "flung up upon the burning sand" in the canoe which had transported them from the vessel in which they arrived. They then crossed a narrow strip of sandy, grass-covered plain, some 1,400 yards in width, and reached a short creek, which carried them into an expanse of water which they very properly name the Badagry river. This river was wide and flowing towards the east. It ran parallel to the coast, and on the opposite or inland bank, full half a mile away, stood the town of Badagry, lined out along the river side. The elder Lander, who tells the tale, remarks on the beauty and lake-like appearance of this water, though even its lake-like appearance upon which he dwells does not lead him to mistake its true nature. This he left to the wiser spirits of our generation, who, in spite of the fact that it is a moving water, flowing continually in one direction, and with a current of no small rapidity, have perversely named it the Victoria Lagoon, a portion of the more properly named Western Waters of the colony of Lagos.

To most of us the word "lagoon" brings either thoughts of mud and mangroves, alligators, slime, and evil smells, or visions rare and delicate of limpid waters lapping up against barriers of foam-fringed coral reef—sheltered basins of transparent seawater, floored with white sand and full of brightly-coloured fish and gaudy shells. The lagoons of West Africa have the reputation of belonging to the former class. One hears of them with a shudder. Visions of stagnant, rotting water, of fetid mud swarming with crocodiles, of putrid stench and deadly calen-tures flit over our revolted minds. In the matted woods that surround them death rules triumphant, and the unnatural horrors perpetrated by their naked inhabitants cloud the imagination with distressing thoughts. Each trader vies with

the last in his highly-coloured pictures. Even the tales of respectable travellers are full of wild and horrible descriptions, which have taken shape in minds obscured by the depression of malaria, or wearied by the monotony of life on the dreary shores, or in the more dreary interior of the Dark Continent. One reads of interminable forests, of degraded savages, of cannibalism, fetish, and slavery, and in the face of such an accumulation of horrors one is tempted to leave that much-bewailed country to dree its weird in its own way.

As a matter of fact, we have, in the inland waterways of the Bight of Benin, a most remarkable instance of delta formation, unlike what is found in any other part of the world. A glance at any good map of West Africa—and I am sorry to say that few such exist—will show that as soon as Cape Palmas is fronted the shore line is backed by a succession of lagoons and waterways which run parallel to the coast, and into which the rivers flow which drain the southern slope of the watershed which feeds the right bank of the river Niger towards the north. These waterways may be said to extend for nearly three hundred miles, as far as the rocky headland of Cape Three Points, where the mountains of Ashanti throw their spurs out towards the sea as far as the Volta river, forming the rocky shores of the Gold Coast, upwards of two hundred miles in length. Of this first set of littoral lagoons we know but little. The Krumen who inhabit that part of the coast are jealous of the intrusion of the white men, whose ways they so carefully study in their capacity of servants-of-all-work on board the steamers, and in the trading factories of the coast.

From the river Volta, again, we have a still more remarkable chain of waters, running with little or no interruption for five hundred miles, as far as the Benin river, which, though of independent origin, yet has communication, some eight miles from its bar, with the Forcados river, the most westerly of the twenty-two mouths of the great Niger. Of the first half of these waters, including the Avon Lagoon and the channels which lie behind Bagdah, Porto Seguro, Little Popo, Grand Popo, Whydah, and the Dahomian coast, I do not propose to speak. As the object of this paper is to study the nature and formation of this so-called lagoon system of West Africa, I have found it convenient to confine myself to the consideration of that portion of the system which has been carefully surveyed and mapped—namely, that which extends from the Denham Waters on the west to the Benin river on the east, a distance, roughly speaking, of 250 miles.

The map now exhibited gives an exceedingly accurate representation of this part of the coast. It was drawn by the present harbour master of the colony of Lagos, Captain Speeding, after a most careful survey, and has embodied in it the

survey work of the late Sir John Glover, as well as the results of many years' study of the country by our present governor and his subordinates. The most important portion, as far as Arogbo, where is found enough water for steamers, towards the Benin river, which is marked as unsurveyed, has within the past few months been fully explored, under the direction of Captain Denton, the administrator of the colony during the absence, on leave, of the governor. As shown on the map, it may be taken as an accurate though rough sketch of the channel which leads into the Benin river. I have been led to confine myself to the data given in this map, for the reason that it shows the only portion of the coast which has been accurately surveyed in sufficient scale to make the details clear, and because there are also shown in it some, at least, of the swamps which run parallel to the existing waterways. My reason for taking these into consideration will be explained further on.

Were it possible to exhibit an equally accurate survey of the whole coast line of the Bight of Benin, it would be seen that a chain of wide expanses of shallow water, and deep, river-like passages of running water, extends, as far as we know, without interruption of a permanent nature, from the Volta to the Niger. In many places these lagoons and channels approach to within a quarter of a mile of the ocean, and throughout their course run parallel to the sea-coast. It would also be noticed that each of these wide expanses of water, such as the Avon Lagoon, the Denham Waters, the Porto Novo Lagoon, and the Lagos Lagoon, receives the drainage of one or more river valleys, which carry large volumes of water from the spurs of the tableland which forms the southern water-parting of the Niger valley. These uplands are generally known to map makers as the Kong Mountains, but it appears from a recent report of a French explorer, who has spent two years among them, that they form the western limit of the central tableland of Africa, through which the Niger has cut its way to the sea at the back of the coast ranges. Draining as they do a considerable expanse of country, which is subject to an annual rainfall of not less than 100 inches, and running, for the greater part of their course, through the centre of primeval forests, which prevent them from becoming mere upland torrents, these rivers carry a steady volume of water even during the dry season. During the rainy season they increase with marvellous rapidity, and pour forth immense volumes of sand and mud into the lagoons into which they open. Such a river as the Opara, for instance, may be safely said to carry more water than the Thames, and as its course lies through insoluble rocks, the solid matter which it carries to the coast is almost entirely held in suspension.

Livingstone, in his "*South African Travels*," came upon what he graphically names "sand rivers"—currents of sand moving

along with a comparatively small amount of water. In trying to ford them he felt thousands of particles of sand and pebbles striking against his legs. This was in the dry season, and he was impressed by the enormous quantities of detritus that must be removed by these streams in the rainy season. The quantity of sand brought down by these West African rivers during the rains must be seen to be believed. It has been estimated that the Thames discharges annually into the sea no less than 1,865,903 cubic feet of sediment, without counting the enormous quantity of solid matter held in solution in its water. Consider the case of these tropical rivers, not less in volume than the Thames during the dry season and infinitely greater during the rains—consider the fact that the detritus they carry is almost pure silica, and consequently nearly insoluble—and you may form a rough estimate of the amount of solid matter which is continually discharged by them. There is a further and still more wonderful difference between these rivers and the Thames. Much of the detritus brought down by the Thames is swept away by the currents of the sea. On the other hand, it has already been seen that such rivers as the Opara debouch into a large lagoon of almost standing water, into which they pour their load of sand and mud. The consequence of this is that a very small percentage of the solid particles which they bring down to the coast is distributed by the ocean currents, and their power as agents for building up new land is indefinitely increased by this fact. Of the reasons for this unusual arrangement I shall have more to say later on.

I will now consider in detail that portion of these inland waters which is shown on the map now exhibited.

Starting from the westerly extremity of the map, which begins near the second degree of east longitude, we see the Denham Waters. This lagoon is bounded on the north and west by the kingdom of Dahomey, on the south by the French trading port of Kotonu and a portion of the Frah kingdom—a British protectorate—and on the east by the French settlement of Porto Novo and by another portion of the Frah kingdom. It is about thirteen miles in its greatest length by about seven miles in width from north to south, and its area may be roughly estimated at seventy square miles. At its north-western corner it receives the waters of the Zumu or Eso (Is-aù) river, a branch of the Opara, which flows from the highlands of Dahomey, and represents the geographical boundary between the Éwé and Yoruba areas. Though connected near its mouth with the Opara, it also receives tributaries on its right bank, and has an independent source. It thus forms a portion of the Opara delta, and at the same time contributes largely to the work of silting up the Denham Waters. The average depth of the Denham Waters during the dry season does not exceed three feet. The water

delivered by the Zunu river, flowing slowly towards the east, has made a definite channel across, or rather along, the lake, of from five to seven feet in depth. The Zunu river itself, beyond its mouth, is a deep and sluggish stream, flowing through low and level land.

In the towns of Awansori and Afotonu we have striking examples of the lake dwellings which the inhabitants have made in comparatively recent times to escape from the Dahomian slave raids. They are towns containing upwards of one thousand inhabitants, whose life is spent in canoes and in huts suspended upon piles. It is a somewhat exciting adventure to pay a visit in these towns. One has to be somewhat of an equilibrist both by nature and education.

In the rainy season the waters of this lagoon swell to an amazing extent, a depth of over twelve feet being shown in its shallowest parts. The surrounding country is submerged, and the narrow Kanji Agege and Toche channels, through which it discharges into the Porto Novo lagoon, are strained to their utmost capacity. The current then rushes through them like a millrace, tearing away the land on either bank. Such was the strain of the floods in 1887 that these channels were unable to discharge the water as fast as it was delivered, the lagoon rose to an unprecedented extent, and burst through the land at Kutonu, where, for nearly a year, it continued to pour its waters into the Atlantic through a wide and dangerous passage. Just as our French neighbours were congratulating themselves on having secured a rival to Lagos bar, which is at present the only navigable inlet on five hundred miles of coast, the sea built up the mouth once more, and things returned to their normal condition. A native tradition—according to which seven men were many years ago carried out to sea by a similar outburst of the waters of the lagoon—points to a previous occurrence of this kind. Six of these men were drowned, and the creek was named Kutonu, or the “water of death,” in consequence.

From the Denham Waters to the Porto Novo Lagoon run the two narrow channels which have already been mentioned. The current sets very rapidly through them at all times, and on them alone depends the discharge of the accumulated waters of the lagoon.

I have been the more detailed in describing these waters from the fact that they may be taken as a fair sample of the process followed along the whole line of coast. We have here a large lake of very shallow water, rapidly silting up under the influence of a continual discharge of sediment from a considerable river. As it silts up, the river defines its course, and runs in a marked and little-changing channel, which becomes more distinct every year as the rest of the lagoon becomes shallower

This channel, strange to say, runs parallel to the coast. The waters of these rivers (for there are many of them) seem to use every endeavour to avoid being forced to flow into the sea. They put it off as long as possible, and one cannot deny that they are wonderfully successful in their endeavours. The large tongue of land between the Denham Waters and the Porto Novo Lagoon, into which the Opara river flows, may be said to be a result of this silting-up process. It is, in short, the delta of the Opara. Between the Porto Novo Lagoon and the coast lie many hollow places, which also run parallel to the sea, and are swamps in the dry weather and deep in water during the rains. These are remains of old connecting channels, which have in their turn become silted up. I have, for this reason, marked them in a different shade of blue, in order to distinguish them from the permanent waters of the lagoons and channels.

From the Opara river to Lagos, a distance of over sixty miles by river, there is a continuous channel of running water, which receives, near Badagry, the volume of the Addo river, a very considerable stream, which comes from the Yoruba uplands. It is navigable for many miles in steam launches, and will eventually become an important trade route to the markets of the interior. A depot market will shortly be founded at a place called Ajilete, near Okeodan.

In the Addo river one sees, in perhaps greater perfection than elsewhere, the immense growths of floating vegetation. For many miles the river flows entirely beneath a floating sod, composed of grass and papyrus. Though its current is nearly half a mile in width, and from sixteen to twenty feet deep, the only portion visible is a narrow canal through the overhanging grass, which is kept clear by the natives for their canoe traffic. I wish to draw your special attention to this fact, as it will be seen that these floating papyrus islands are one of the chief agents in the formation of land in this part of the world. The banks of all the waterways are lined, often for two or three miles in depth, with floating masses of vegetation on which it is possible to walk. These form pads, which protect the land from the scour of the current. Wherever there is an eddy or slackening in the current, one sees the floating cups of the duckweed slowly accumulating. In this accumulated mass of duckweed (*Pistia stratiotes*) there shortly appear a few stalks of floating grass, which rapidly bind the duckweed together into a coherent mass, and growing with great rapidity make a suitable bed for the papyrus, which sends its rope-like roots abroad in all directions, and lashes together the floating island into a solid sod some three feet thick, through which a channel has to be cut with an axe. A few miles of water are rapidly covered in this way, and by the end of the dry season the rivers are one and all flowing

under a dense covering of papyrus and grass. When the floods come suddenly down from the hills in the interior this covering is torn away in masses varying from a few yards to over an acre in extent and rapidly carried towards the sea. I have from my house at Badagry counted twenty-three of these grass islands floating past at the rate of about four miles an hour before breakfast. When one considers that this procession goes on day and night for several weeks every year, one sees the enormous accumulation of these islands which must take place somewhere. As a matter of fact, they are rapidly distributed along the banks of the main waterways, which run parallel with the coast, when they become permanent, and are further solidified by the boucan tree, a species of wild water fig, probably the origin of the word boucan (buccaners) in the West Indies, the wood of which is still used for smoking meat by the natives of West Africa. By long-continued mooring at one place these islands become bound together by groves of these boucan trees until they rot and sink, and accumulate to such an extent as to choke up the waterways and produce the lateral swamps which are marked on the map. In these swamps flourish the *Raphia vinifera*, or palm wine palm, the basket tie-tie, a climbing prickly palm common to the tropics of America and Africa, and many other less useful trees.

Such of these islands as escape from the mesh of waterways which lead towards Lagos, accumulate near the bar, and continue their good work of land-making, though disturbed by the nearness of the thundering surf and salt spray, for they cannot grow in salt water.

As one nears the bar at Lagos the boucan gives place to the mangrove and the coco-plum (*Chrysobalanus icaco*—also common in the West Indies), the beautiful water lilies (*Nymphaea*) of the upper waters vanish, and melancholy mangrove roots hang into the water on all sides.

Passing Lagos towards Benin we find the Ogun, Oshun, and the Oni rivers debouching into the lagoon. The current flows to the westward instead of towards the east, the boucan is replaced by the mangrove, and there is a marked absence of papyrus. There is little doubt that the influence of the Niger begins to be felt. It is probable that the water in this direction is more hemmed in by dense forest, which overshadows the water, and prevents the growth of grass. This is doubtless due to the greater fertility of the mud which comes from the Niger basin. Indeed, one sees at Abegamura, where the coast trends towards the south, that the beautiful golden sand of the coast-line is replaced by Niger mud—black, fetid, and unhealthy.

I have rapidly sketched the chief characteristics of these waterways. As at present existing, there may be said to be a total of 465 square miles of water lying within fifteen miles of

250 miles of coast. Of this 216 is stagnant—in the form of lagoons—and 246 is running with a current varying from two to four knots an hour, through channels varying from a few hundred yards to two miles in width. The total length of these intricate passages it is impossible to give. A glance at the map will show how tortuous and manifold they are. In Schweinfurth's celebrated work on the "*Heart of Africa*," vol. I., p. 106, will be found a picture of the Papyrus Islands of the Upper Nile, which exactly represents the appearance of the western portion of these waters.

In the 500 miles of coast-line, from the Volta to the Benin, there is, as I have already said, but one break of any importance, but one natural harbour, where the accumulated inland waters escape into the sea. This is the outlet known as Lagos Bar, where, through a narrow channel not many hundred yards across, this great mass of water pours into the Atlantic from east and west, from the Niger and the western lagoons. Over this bar steamers drawing thirteen feet of water can safely pass, while inside the harbour vessels drawing 26 feet can moor alongside the piers. There is, unfortunately, not sufficient depth at the entrance to make the magnificent port of Lagos "*The Liverpool of West Africa*," available to large ocean-going steamers. It is probable, however, from consideration of the rapid currents of these inland waters, and the slight check which they receive from the small difference in tidal rise of the open ocean, that works on the model of the Mississippi improvement scheme would, by concentrating the stream upon the bar, deepen the passage to allow of free entrance and exit to all vessels. It is, I believe, under consideration to take the advice of a competent engineer upon this question.

In no other part of the world is there so marvellous a delta formation as that which I have described. Brimful and rapidly flowing as these waters are, they are yet retained for hundreds of miles by narrow strips of shifting sand. I know of nothing so astonishing, unless it be the approach up the Mississippi to New Orleans, where for many miles the spray from the western portion of the Gulf of Mexico is carried by the wind across the rapid current of the river, to mingle with the waves upon the other side, where, from a steamer's deck, you can see the white sails of the fishing boats in the ocean on either hand, where a few hundred yards of grass and sand separate the channel of the greatest river in the world from the breakers of the open sea.

We all know how Major Eades attained this wonderful result; how, by planting rushes and grass, and driving piles into the banks, he confined the river into a narrow channel and forced it to dredge its own passage, thereby increasing the depth of water on the bar from eleven to twenty-five feet. Had he visited West Africa he would have seen Nature at work in the

same way, cooping up the waters of many considerable rivers in a narrow channel running parallel to the shore for hundreds of miles, and often separated by a few yards only of shifting sand from the tremendous Atlantic rollers which continually pour in upon the African coast. How is it possible that these great engines of destruction should unceasingly be battering against this narrow strip of sand in vain? The noise and fury of their attack is heard for miles inland; the coast line is blotted out by a continually rising cloud of foam and spray; the force of their onset is such as to tear down the beach, leaving, after a storm, a perpendicular wall of crumbling sand, and yet never once within the memory of man has the sea broken through into the lagoons. I shall endeavour to explain this wonderful phenomenon, and it will, I think, appear from full consideration of the facts, that such astounding results have been attained by the most simple of Nature's means.

In the first place we must bear in mind that the force of the tide on these open shores is very much less than in the narrow British waters, though the power of each individual wave is immensely greater. The extreme difference of spring tides does not exceed three feet, as compared with fourteen or eighteen feet on many parts of the English coast, and forty feet in the Bristol Channel at the mouth of the Severn. The reason of this slight tidal rise and fall is, of course, the openness of the coast, which prevents the banking up of tidal waters which takes place in narrow seas. In the Bay of Fundy, for example, the extreme tidal difference amounts to no less than seventy feet. As a destroying agent tide counts for much more than waves. Tide gives impetus to the waves, and enables them to attack at a greater distance, and to drag further away the fragments of the resisting shore which they overpower.

Again, there is nothing more surprising on the African coast of which I am speaking than the absence of violent storms. Hurricanes are unknown, and the worst West African "tornado," as they are somewhat imaginatively named, is to the ordinary West Indian hurricane as the strength of a child to the power of a strong man. When I mention the fact that the Bristol vessels anchor off the coast in unprotected roadsteads for three years at a time, for trading purposes, without dragging an anchor or snapping a cable, you will readily understand that there can be no great force in the worst winds that blow in this land of fair weather.

In addition to the above considerations, there is the fact that for nine months of the year a steady breeze blows from the south-west towards the inland hills and the Sahara at an angle to the coast of about 45°. By this unceasing wind is produced, or at least assisted, a strong current, which sets in towards the Niger from the westward. This current is known as the Guinea Current.

It runs parallel to the coast, and varies in rapidity according to the strength of the wind which drives it. At times of high winds, a cork or stick flung into the sea is carried to the eastward as rapidly as a man can walk. This current sweeps along the whole coast from Cape Palmas to the Niger, tearing away the sand from the rocky shores of the Gold Coast and distributing it along the line of the more protected Bight of Benin. Thus we see that the accumulation of sand in the Bight is not the gift of the Niger so much as of the more westerly shores of the continent. With such strength does this current run, that the breakers strike the shore at an angle, making, at times of high winds, undulations in the sand equal in width to the breadth of the waves. These gigantic ripple marks are often nearly at right angles to the coast-line, and measure from fifty to seventy feet in width from ridge to ridge. Its scouring force is such at times as to undermine the shore for many miles, leaving a sheer wall of sand from four to six feet high at high-water mark. These miniature cliffs of soft sand are smoothed away as soon as the calm weather lessens the force of the current; but throughout their whole length the shores of the Bight of Benin are steep, narrow, and constantly changing in shape, the fact being that, as fast as the waves and current carry away the sand towards the Niger, fresh supplies take its place from further up the coast. Thus the wearing away of the shore in any given place is constantly made good by fresh supplies; and as the drift of sand from the westward is greater than the amount carried eastward, the narrow strip of land which separates the Atlantic Ocean from the inland waterways not only resists the onslaught of tide, waves, and current, but tends always to increase in width, solidity, and strength.

From consideration of these facts it is easy to explain the astonishing endurance of the narrow belt which separates the inland waters from the sea. It has been seen that this result is produced by very simple means. There is, I believe, an equally simple explanation of the manner in which this lagoon system has been so shut in from the sea. At first sight it seems a most extraordinary freak of Nature. Why should not these rivers—the Zunu, the Opara, the Addo, the Ogun, the Oshun, the Oni, and others equally insignificant compared with their big brother the Niger—be contented to flow into the sea each in its own way, over its own bar, at the end of its own valley? Why, after flowing for many miles through hills and between well-defined banks, should they turn with one accord into a channel at right angles to their courses, running parallel to the sea for many hundreds of miles, and only separated from its waves by a narrow belt of sand?

Given the above conditions of tide, current, and wind, and the peculiar character of the rivers in this part of the world, as

already described, we will consider the case of one of them, the Addo river, which debouches into the Victoria Lagoon near Badagry. At Memfo, some fifteen miles in a straight line from the sea, the river flows past the foot of a bluff a hundred feet in height. Higher up, at Okeodan, a day's journey by canoe from its mouth, it has the usual characteristics of a tropical river. There is nothing to lead one to believe that it will so suddenly alter its course, and issue, as it does, over a shallow bar into a broad river-like lagoon, flowing at right angles to its course instead of into the sea which lies so near its mouth.

Let us consider the coast as stripped of this delta formation. From Cape Three Points it would trend sharply to the north-east as far as the foot of the Dahomian highlands. The bluffs of Porto Novo and Memfo would in all probability exist as shelving islands indicating a zone of previous elevation. From thence it would run east and west at a distance of fifteen to thirty miles from the coast as far as the Benin river, where the true delta of the Niger commences. We have thus an ancient sea margin some thirty miles north of the present coast. That the increase to the coast is not greater is probably due to the fact that it only commenced in earnest when the elevation of the land ceased. Otherwise one would expect to find it level with Cape Three Points, the buttress behind which the Guinea current has so laboriously accumulated its stores of sand.

We will consider the Addo river as flowing into the sea at the end of its course among the uplands. Its current would strike the shore at right angles, and if met by no current of the ocean would tend to make a delta at right angles to the shore, similar to that of the Mississippi; for the delta of the Mississippi follows the direction of the prevailing northerly winds which blow from the Rocky Mountains and the Arctic circle across the American continent. The Addo river being a river of comparatively short course is able to deliver its burden of sand in the rough state. A river like the Niger or the Mississippi has to grind its sand into fine mud before it is able to deliver it to the sea. Fine mud means mangroves and fertile land. Rough sand means scrubby brush and open waters suitable to papyrus and unsuitable to mangrove. Vast quantities of papyrus islands would continually float down and as continually tend to consolidate the delta formed by the river. This delta would gradually acquire a bias away from the prevailing current and wind, and this bias would be rapidly increased by the accumulation of drift sand carried by the Guinea current, and heaped up on the outside of the delta. We have thus a delta forming which is continually padded by grass islands on the river side, and heaped up with sand on the sea side. As it grew more solid the right bank of the river would tend to seek the direction of the prevailing current, and having strength to resist the onslaught of the waves

in the manner already described, would consequently follow the direction of the coast parallel to which the current flows. The left hand being weaker than the right hand, owing to the absence of the tribute of sea sand supplied to the right bank, would be less and less marked, and would eventually become identified with the old sea-beach, thus forming a lagoon proportionate in width to the strength of the current of the river which supplied it.

This lagoon or wide river mouth would continue its formation until another river was met with, undergoing a similar process of formation. When the mouth became silted up against the right-hand bank of the terminal lagoon of the next river, until it grew very narrow, an unusually heavy flood would cause it to break through into the next lagoon, and the original mouth would be completely closed and silted up. There is little doubt that in this way the Zunu has broken through into the Opara, the Opara into the Addo, and the Addo into the Ogun. In all probability, indeed, this course was continued by the Ogun breaking into the Oshun and the Oshun into the Oni rivers, and the Oni into the Benin. As the Niger pushed itself out into the Gulf of Guinea it absorbed the Benin into its delta, and deflected a considerable portion of its flood water into that river. The Benin river, being reinforced by the Niger, proved to be too strong for the other and smaller rivers, and being unable to deliver all its water through its own mouth, caused a conflicting current to flow back to the westward to meet the current from the Zunu, Opara, and Addo. Where the weight of these contrary currents became balanced was a large lagoon receiving the Ogun river, and after a flood of unusual severity the sea wall of drifted sand was overcome and a new river mouth was formed at Lagos. Being eased of its glut of water the Benin ceased to have much difficulty in discharging itself over its bar, and any superfluous flood water from the Niger is now drained off through the eastern waters of the colony of Lagos over the Lagos bar. As in course of time the Niger delta is pushed further out there is little reason to doubt that the new parallel lagoon which will by that time have been formed by the Lagos river will be in its turn absorbed by the Niger, and will from one of its numerous mouths at some part of its course not far from the Benin river. It is to be noticed that there already exists a tendency on the part of the right hand of the Lagos channel, though only a mile or two in length, to overlap the left bank, which has been rapidly carried away by the easterly trend of the river at its mouth. Captain Hammond—the manager of the Lagos Warehouse and Commission Company—once pointed out to me a spot, some half-a-mile out at sea, where, no longer than five years ago, he used to have picnics under the palm trees which then grew there. A cor-

responding growth outwards of the right-hand bank has taken place, and there is no doubt that, within a measurable distance of time from the present date the land will have overlapped, and the mouth of the Lagos river, now known as the Lagos bar, will point in an easterly direction. You will readily admit from the above considerations that there is no more astonishing delta formation in the world than that of these so-called lagoons of the Bight of Benin. Of the more remote possibility of the lagoons and waterways which have formed under the shelter of Cape Palmas eventually passing the rocky shores of the Gold Coast and joining the more easterly system it is not necessary to speak. In all probability Cape Three Points is not sufficiently sheltered by Cape Palmas to allow this.

If it is asked what interest these waterways in an admittedly fatal climate, other than a purely scientific interest, can have for us, there is a very ready method of supplying a satisfactory answer. In 1862, when we took over the notorious slave station of Lagos, the total trade amounted to £139,866. Palm oil was then worth £52 per ton. Other trade but palm oil and slaves there was none. With palm oil at less than half that price, and kernels lower than they have ever been, we have increased the trade to close upon a million sterling per annum. Every gallon of oil and every pound of kernels is brought to Lagos by canoes and steamers along these waterways. On the Gold Coast they cannot possibly compete with us, owing to the fact that the produce has to be brought for long distances overland. The waterways of Lagos intersect in every direction the palm forests which flourish best in close proximity to the water. Their mangrove and boucan forests give an inexhaustible supply of wood for boiling the palm nuts, from the pericarp of which the oil is produced, and by this means we are able to supply a better article than the natives of the Gold Coast, who are obliged to subject their palm nuts to a preliminary process of fermentation, which damages the produce to the extent of several pounds sterling per ton. It is on these waterways that our trade with Lagos entirely depends, and the gigantic steps which have been taken of late years are entirely due to the unrivalled facilities for communication offered by this wonderful system of rivers and lagoons. With the introduction of the cultivation of Egyptian cotton, of fibre plants, and the more thorough exploiting of the natural resources of the country, in the shape of cocoa-nuts, indiarubber, kola-nuts—now so largely used in the manufacture of beer—Liberian coffee, and other plants, we may look to a still greater development of trade during the next few years. Under the management of an enlightened system of government we are acquiring all these advantages, and may hope in a short time to be putting really good cotton on the market as well as *furcræa*, *sansivieria*, and other well-known fibres. The cocoa-

nut industry is being carefully fostered by the Government, which has plantations of 50,000 trees in preparation as an example to the natives, and should, in a few years, be a considerable source of profit. Upwards of 30,000 coffee, kola, indiarubber, and other plants were distributed last year by the botanic stations of the colony among the natives, and this amount ought to be more than doubled during the coming year. These plants are sold to the natives at a nominal rate, and are eagerly purchased. A similar course will be adopted with Egyptian cotton and other plants. As the rich soil on the shores of these lagoons and rivers becomes more fully cultivated, the export of more varied articles of commerce will cause a rapid increase of our trade. In the meanwhile the enlightened policy of the Government at home has extended the sphere of our influence as far back as the Niger, so that we may look for an extended market with the interior tribes along the upper reaches of the rivers which I have mentioned. As we hope to have abandoned our short-sighted commercial policy of relying upon one staple product, which has been cleverly described as "the eggs-in-one-basket policy," so we have at last condescended to accept the repeated offers of the natives, and to put on one side the equally short-sighted "sand-strip" policy which has hitherto confined us to the unhealthy neighbourhood of the lagoons and swamps of the slave coast. In both of these new departures we depend upon our means of rapid and easy communication for the steady development of our trade and influence with the natives. This is supplied in an unrivalled degree by the rivers and so-called "lagoons" of the Bight of Benin.

Experiments with Economic Plants in Malacca.—Some interesting information is contained in a Report (No. 65) recently issued from the Foreign Office, as to the results of experiments with economic plants made by the Forest Department in Malacca. We extract the following: Mauritius hemp (*Fourcroya gigantea*) grows slowly, but well; some fibre has been prepared from a few old plants and has the appearance of good fibre. If kept free from weeds, nothing further appears to be required to insure success. Virginian tobacco—a fine lot of plants were raised from seeds received from Kew, but from seeds saved locally the plants deteriorated so much that cultivation has been discontinued; experiments with Deli tobacco were also unsuccessful. Castor-oil seeds were obtained from the Botanic Gardens at Calcutta, and the plants have grown vigorously and commenced to fruit. Croton oil grows freely and fruits abundantly. Annatto (*Bixa orellana*) grows vigorously and is deserving of trial on a large scale. Black pepper grows well, and might be more extensively cultivated to advantage. The cultivation of pepper was, in the early days of the settlement, one of the chief industries of the country; it is now being taken up again to a considerable extent. Cubebs (*Piper cubeba*) promise well, and are being propagated as largely as possible. Maltese oranges and lemons have grown well. Mahogany (*Swietenia mahoganii*) seeds were received from Kew in 1886; the plants have flourished and are ten feet high this year. Unfortunately few are free from the ravages of ants. Two species of eucalypti have grown with remarkable vigour. The average annual rainfall of the district is 74 inches.—*Proceedings Royal Geographical Society.*

LAKE NYASSA AND CENTRAL AFRICA.

By CAPT. F. L. LUGARD.

[Read to the Members, in the Memorial Hall, Wednesday, October 16th, 1889.]

I HAVE been asked to read before you a paper on Lake Nyassa, but knowing how many abler pens than mine have already essayed the task, it is with reluctance that I make the attempt, though I much appreciate the honour done me by the request.

I conclude that all who have an interest in their fellow-countrymen, who have for years (and with the most splendid results) been endeavouring to do good to this country, have already read what has recently been written on the subject. Were I then to reiterate my plea for those of my comrades on the lake whom I left at Karonga's, stemming the tide of the slave trader's aggression, I should but be repeating the story which I considered it my duty to tell in the September number of the *Contemporary Review*. On the other hand, if I dwell on the commercial possibilities of the country, I only echo my words of a few weeks ago, when I had the honour of reading a paper on this subject before the Geographical Section of the British Association at Newcastle. I then, as fully as I was able, discussed the products and capabilities of Nyassaland, and argued its advantages and disadvantages as a country for emigration both for Europeans and natives of British India. The subject was to me a pleasant one, for I believe in the capabilities of the country; but in deference to the scope of the subject on which I was asked to write, I denied myself the latitude in description and general detail, the introduction of which, in the most charming of language, made the paper read by Captain Hore supremely fascinating to all who heard it.

Let me then attempt to describe to you now what sort of a place this Lake Nyassa is, and what sort of people live there. We will travel there together in imagination for a brief half hour. Hurriedly we pass over the four or five days' boat journey up the Kwakwa river, from our starting point on the coast at Kilimane. This is not a time "to memory dear," yet it has its fascinations. The trees on either bank drooping into the silent river, great limbed acacias with their feathery foliage and sweet-scented yellow blossoms, and large fig trees festooned with giant creepers—the glorious (though perhaps for you too powerful) sunshine, the cheery and incessant boatman's song as they dip their paddles simultaneously to the cadence—the lovely tinted reed warblers and gay butterflies—and soaring above all the great fish eagle with his weird cry, more weird and striking even than the lion's roar—all these are new to us and charm us. But as evening falls the curse of the Kwakwa, the myriads and myriads of mosquitos, come forth like a misty army athirst for blood, and we are only too glad to light a fire of green wood, and sit in the blinding smoke, though it draws involuntary tears from our eyes, to escape the smarting pain of their venomous bites. The night is a weary one, for no mosquito net seems proof on the Kwakwa, and in our very dreams we wonder what human fiends the Bhuddist creed condemns to be transmuted after death to mosquitoes!

The indispensable morning dip is hazardous, for the river is full of crocodiles. So we reach the end of the Kwakwa, where we must transfer ourselves and effects across to the Zambesi, a portorage of four miles. It is a noble river, perhaps three quarters of a mile wide here. We are still in the fever zone, and shall be till we leave the river. Almost opposite is the mighty baobab tree, under which lies Livingstone's wife. Other graves around testify to the fatal malaria of the place. The fever is bad enough. I will not inflict on you a description, which would perhaps be worse! Soon we branch off to our right to ascend the Shiré, a broad, fine river, running into the Zambesi, and push on through the Morambala marshes, with the great mountain looming in front and on our right; and if you have not already experienced an attack of fever, I can promise it to you here. As we wind in and out along the dead flat country, the Morambala mountain assumes new shapes, and is now on our right, now on our left, and anon almost behind us, so interminable are the windings of the river, but it seems to get no nearer. Islands of water cabbage and vegetable debris of all kinds float past us, and so we reach and pass through the Elephant marshes.

Doubtless, in no very distant past, all this country was a shallow lake, over which the great Morambala kept silent watch, in the times when these dreary swamps knew not the sound of the white man's rifle. Many, indeed, believe that the ancient Portuguese discoveries of a great lake, with a mountain rising out of it, referred to these swamps, then flooded, and not to the real Nyassa, as now alleged. So we reach the Makololo chief, Inlanri. A quaint old man, and a fine-looking old chief he is. He will talk to you only in English; for it is the boast of his life that he was Dr. Livingstone's private servant, and followed him here from far-off lands in the far interior. His English, however, is altogether unique, and to us was unintelligible. He has ever been our loyal friend, but they say that the Portuguese have lately been telling him it is due to the English that powder and guns have been stopped. He is a keen elephant hunter, and the result is that (persuaded the Portuguese will give him arms) he is beginning to waver in his loyalty to us, and lately the little steamer on the river was fired on almost opposite his village.

Next day we are at the end of our first river voyage. A weary climb for thirty miles up gradients which Highlanders may think trifles (for we are among Scotchmen now), but which an average man is glad to see below and behind him—and we are at Mandala and Blantyre, on the Shiré highlands. We are to journey on the lake, but you must halt here a moment or you would outrage the generous Scotch hospitality, besides, there is only one Blantyre in Africa, and nothing like it anywhere else. Savage Africa lies all around, but passing up the long avenue of blue eucalypti, we find ourselves in an oasis of civilisation, the more striking and complete from the contrast. Well-built and neatly-thatched houses, of solid brick, enclosing a square, beautifully kept in shrubs and flowers, all watered by a highly-skilled system of irrigation channels—bringing water from a distant brook, gives a British, homely charm to the picture, and disarm surprise when we find well-stocked kitchen gardens, carpenters' shops, brickmaking and laundry establishments, all around us. The mission children are dressed in spotlessly-white clean clothes, and look bright and happy. It is a mission under peculiar circumstances. It is not, like most stations, situated in the midst of filthy and arrogant tribes, who, while dreading and respecting the superiority of the white men, are yet fully cognisant of their own brute force. Few villages lie even near it, and over most of these the head of the mission exercises a right of arbitration and rough jurisdiction. The children are not haphazard comers—here to-day and absent by some whim to-morrow—but boarders; many coming from far, the sons of chiefs and head men. Over this little model colony preside the *genii loci*, the Rev. Clement Scott and his wife, and I know not which exercises the greater

influence for good. This influence is extraordinary, for no one more quickly discerns the real *gentleman* than the African savage.

It is a tempting spot to linger in, either in fact or on paper. I would like to write you a much fuller account of the Shiré highlands, of the very pretty church, so pretentious in its architectural beauty, owing to the talent of Mr. Scott, as to have gained the sobriquet of the Blantyre Cathedral—of Dr. Bowie and his work—of Mandala and Mr. Morris's thousand experiments with dogs, goats, horses, poultry, &c.—of the coffee plantations, and of Messrs. Buchanan's sugar, coffee, &c., at Lomba; but we must push on to Nyassa, and I must refer you to Mr. Buchanan's interesting book.

After the first mile or two it is a gentle, almost imperceptible slope which takes us to the Shiré again, above the cataracts. Beautifully-tinted gladioli, and a thousand lovely flowers and flowering shrubs are around us on our way to Matope, the Lake Company's depot, in the upper river. Hence we ascend the river again, by the little steamer the *Ilala*—whose history is a chapter of African romance itself—or by open boat, according to the time of year and the amount of water in the river. As we near the south end of the lake, on our left lies village after village, some of huge size and densely populated. This is Impondá, a semi-Arab chief, wholly under Arab influence. The river is narrow here and his guns command the entrance to the lake. It is the point of the greatest strategic importance in this part of Africa. For years, friendly relations have been maintained between the British and him; nothing would have been easier than to make a fair and advantageous treaty with him. We had no rivals. No other nationality had ever come so far, except a fortuitous explorer or two. Twelve months ago, those interested in the good of this land, urged by all means in their power that steps should now be taken to establish their rights here—their voice was a voice crying in the desert. The result they foresaw has recently happened.

The Portuguese—who, whatever they may have done in prehistoric periods of African exploration, were unable in modern times to penetrate to these parts, so great was the dislike to them and their ways by Inlanri and the lower river chiefs—have taken advantage of the peaceable relations established by the British, and of the prohibition to the import of arms which allowed them to equip expeditions and prevent others importing an ounce of powder, and pushing their way up (about last January), have presented their inevitable flag to Imponda, and washed down the dose by the present of an Express rifle, and other goods—regardless of the fact that the gift of arms to natives and Arabs was contrary to the terms of their compact with the blockading powers. So now they have a treaty, and a piece of land in possession, and claim a right to the south of the lake. Imponda is a noted slaver, and with the Portuguese will come the introduction of spirits, hitherto rigorously prohibited by our missionaries and traders, and I fear lest the good results of years of patient work will be lost. Should these claims be acknowledged by England it would be useless for traders to attempt to work at the north of the lake, when the whole waterway of the Shiré and Zambesi, and the entrance to the lake, is in the hands of a rival power, who, hitherto, has not shown herself friendly.

Already we are twelve months too late, but all is not lost yet. Will not the British public interest themselves for those who have for years done so much for the good of this country? Will not those who admire the unpretending heroism of lives devoted for a long series of years to the establishment of missions and the culture of the people raise a voice on their behalf? Are there those to whom this does not appeal? Will they then see substantial British claims to a fertile country offering a market for our manufactures and promising to yield very important products in return—among which we now know gold to be included—will they allow this to lapse into the hands

of a nation which has no claim beyond certain ancient and disputed documents of discovery, of the existence of which they were themselves, it appears, ignorant for a number of years, and which had lapsed through their own oversight?—a nation which has done nothing worth speaking of for her East African possessions, which levies a polltax on the wretched Negro, and gives him nothing in return, and has made neither bridge, nor road, nor rail, nor irrigation during the 300 years she boasts to have occupied certain places on the Zambesi and coast? Guns, powder, and spirits she largely imports. These do not improve the status of the natives. It is not yet too late for Britain to repudiate these claims and insist on her own undeniable claims to the Shiré highlands and the territories to the south and west of Nyassa.

Let this be my plea this evening, that you will support your countrymen in their efforts in East Central Africa. Once proclaim, with no wavering voice, our policy there—once let it be understood that we mean to stand by our rights—and companies and charters will spring up speedily to work the gold and other products of the land; and with their advent will disappear the Arab aggression and slave trade of this country, at present acknowledged to be the head-quarters of the slave traders' hunting-grounds.

Our present object is to visit Nyassa and its people, and to spend with them a more intimate half-hour than can be gained by a study of the map. The view as we steam in the little Ilala round Cape Maclear into the old mission station of Livingstonia is picturesque in the extreme. A few feet from the shore we are in blue water many fathoms deep, yet so clear that we can see the bottom, as if it were but a foot below us, and the water growths and shells, and many coloured fishes. Above and behind us tower the rugged boulders of the hill. In front of this fairy port are a series of islands standing out to sea, behind which the sunset shows with a glory that is superb as it sinks below Nyassa Lake. Much as I have travelled, I have seen, I think, no lovelier spot in my life. Clear as crystal to look at, the water of Nyassa under analysis proves to be as good as it looks. There is singularly little flotsam cast ashore by the waves, and no floating debris on the waters, spite of the large quantity of wood and vegetation borne into the lake by the rivers when in flood.

Nyassa is close on 400 miles long, with a breadth varying from 15 to 60 miles. On the east, the lofty Livingstonia range of hills, some 6,000 feet high, in many parts run almost sheer down into the water. On the west the coast is rarely precipitous, and for the most part is beautifully wooded. Here and there it is rocky, and great weather-worn boulders rise like beacons out in the lake, whose waters surge round and over them with the sound of the ocean. In other reaches there is a sandy beach, where the waves roll softly in on the shore. Beyond are woods and forests or plains of grass leading to the range on range of hills which form the higher plateaux of Africa and the watershed of the lake. One or two islands are dotted here and there—some very small, others a mile or two in length—all crowned with trees and vegetation, with bright-coloured lizards and huge centipedes and other insects. One wonders how the animal and vegetable life found its way here from the mainland. The level of the lake is constantly and regularly falling year by year, and the exit by the mouth of the Shiré is gradually getting blocked by a bar of sand. Theories are various to account for this. It may be that the detrition of the rocks in the Murchison Cataracts allows a larger body of water to pass through and drain from the lake; or it may be that the rainfall has decreased in the area drained by the lake, for there are those who maintain that it does so decline during a nine years' cycle, though from what causes has not been explained. The silting up of sand at the mouth of the Shiré is harder to account for, and is apparently exactly paralleled by the phenomena

described by Captain Hore and others on Lake Tanganyika. It would seem probable that a constant decrease in rainfall has been going on for a large number of years, which would account for the drainage of the Shiré marshes and the rapid shallowing of Lake Tamalombe.

The largest Arab settlement on the west coast of the lake is Jumbe's, about S. lat. 13°. He and the east coast Arabs have several large dhows for carrying goods, especially slaves. Storms, or rather squalls, are frequent on the lake. Skirting up the west coast, we come to the mission station of Bandawé, on the lake shore, in lat. S. 12°. Dr. and Mrs. Lawes have effected wonders here. Their schools are thronged, and the practical nature of the work is invaluable. But I must not again allow myself to digress into a description of an African mission station, however tempting.

Dr. Lawes' contributions to science, and his extensive information, have made his name celebrated as the scientific referee on all Nyassa ologies. The people among whom he lives and works are the Atonga. The features of most of the men one sees are distinctly good, but each tribe has unmistakable characteristics of its own, and to detail these would prove uninteresting, even if time permitted. On the whole, they are intellectual-looking people. The forehead is high and broad, the profile good. The prognathous types of West Africa are rarely seen here. The mouth is generally large, but not excessively thick-lipped in most of the tribes. In some, indeed, the lip is thin and delicately cut. The nose is generally small and badly shaped; but many individuals, on the other hand, have well-shaped and even aquiline noses. In physique they are often very fine indeed. Some of those I remember were both tall and muscular in the extreme. They are symmetrical, and have deep chests and well-developed arms and legs. Their colour varies greatly. The prevailing tint is deep black, but often in the same tribe, and even in the same family, you may find the black and the pale chocolate colour side by side, with no apparent reason. In temperament these children of Nature are lazy and good natured. They are very excitable—driven to frenzy by the war dance and the drums and shouts which accompany it. Now ready to fight like heroes and face certain death—anon equally prone to panic and dismay. As a rule they are plucky—if that be pluck which has little conception of danger till it stares them in the face—and no stronger motive for facing death itself more weighty than the off-chance of looting your neighbour's cow. Vices and virtues are strangely mixed in these wild African savages. Falsehood and duplicity is perhaps with them rather a virtue. Generosity in sharing any good fortune, in halving the last crust—or what would correspond to that proverbial item in the African menu—is so universal and usual as not to demand notice among themselves. Almost every man, and *par excellence* every chief, is at once an inveterate beggar, and ludicrously arrogant and haughty. How, then, can I describe to you in a brief compass such a paradox of human character? In religion they believe, I am told, for the most part in the spirits of their ancestors, and in a vague "Inlungu," or unknown God, who, they apparently think, takes as little notice of them as they do of Him. Their religion makes them intensely conservative, and is thus greatly opposed to the introduction of newer or better methods. They are excessively superstitious, believing in magic and necromancy, and the efficacy of spells and charms, of witchcraft and augury. The test of the Oola and the ordeal of Inwari poison are their ultimate methods, the one for augury and the other for the detection of supposed crime and witchcraft.

Their arts are very simple. They work in iron and produce the sole agricultural implement which they have—the hoe. This and the axe are their only utensils. Both fit to the handle by a spike passing through the wood (which is made thicker, to receive it, at the point through which it passes). As in most primitive nations, all

the art of embellishment and of form is spent on their weapons of war, the spear and the shield. The former vary very much in shape and design, and are often most artistic and beautifully made. Sometimes they are furnished with barbs, which make cruel wound, and are not extricable from the body. They are thrown from the hand at a short distance, with great force and accuracy, and are well balanced, and ornamented with brass and copper wire. The shield of the Angoni is a large oval, like that of their ancestors the Zulus. The Wankonde tribe carry a wooden shield, covered with skin, long and narrow, curving round like a tube, inside which the arm just fits. It is generally not more than seven or eight inches across. In wood they also do some rude ornamental work, especially in the manufacture of their pipes. Rough carvings of crocodiles and lizards appear on their benches and seats, and the long spoons are often curiously wrought. All work is done out of one block or piece. They have no knowledge of welding metals, or dove-tailing, sawing, or joining wood.

Their dwellings for the most part show little skill or design, and are beehive-shaped huts, lined with mud. The tribes at the north end of the lake, however, are a singular exception: their huts show architectural design of no mean order. They are circular, the uprights leaning outwards considerably, and composed of stout bamboos cut and notched, so as to present a curiously varied and striking effect. The interstices are filled with lumps of sunburnt clay, shaped like French rolls. The thatch is conical, high, beautifully made, and the door tolerably high and wide. The floor is raised, and the whole interior plastered smoothly, and kept scrupulously clean. The villages are embowered in huge groves of plantain trees, and the whole surroundings are a model of cleanliness. They cure skins by hand-rubbing, and use those of small animals—especially monkeys and wild cats—for tobacco bags and for dress. Those of goats, &c., are used for bags to contain flour. The skin is taken off in one piece—drawn over the head—but they have apparently no idea of combining and sewing them. Their grain is prepared first by pounding with long heavy poles, in a hollowed wooden cavity, and then ground on a flat stone with a circular one by hand. The grain is stored in large basket-shaped granaries, raised from the ground, plastered with mud and thatched. They make earthenware pots, &c., to cook their food—the hollow gourd is the drinking cup and vessel to contain water, milk, &c. In the working of the fibre they are very clever, making rope from the size of a ship's cable to that of small twine, out of the inner bark of the fig and other trees, and of plantain fibre, and plaiting the strands with great regularity and neatness. Of the plantain they also make very artistic mats of great durability in wear. Baskets are woven so closely as to be capable of containing water, and of ornamental design and shape.

The field labour is mostly left to the women—the hoeing, weeding, and reaping of the fields, and the pounding and preparing of the grain and flour. Various grains are cultivated, and a few edible roots, such as sweet potatoes, yams, and cassava. The villages of some of the tribes are stockaded. Tall poles are planted close together in the ground, sometimes in single row, sometimes two or three deep. These are lashed together with bands of reeds, and plastered with mud to the height of several feet from the ground, and festooned with thorns above. The ground in front is also frequently strewn with thorns. Often a second, and even a third, line of defence completes the fortification.

Such is a very brief sketch of these people taken as a whole. Were I to attempt to describe the specialities of the several chief tribes, either in character, physiognomy, artistic skill, or social advancement, I should very far exceed the limits of my space. I have described them as generous, brave to a certain point, not wanting in certain rude efforts at social advancement, merry, and easily pleased. What, then, for all these ages, has checked the advancement of these people, and left them centuries behind

the tribes of India, of China, and of Asia? The reasons are many, and too complex to examine here. Let us content ourselves with one.

At the present day the great bar to social progress is the insecurity to life and property. The savage lives from hand to mouth. The weaker tribes care not to plant trees or build good houses, not knowing whether they and their posterity shall reap the benefit. Those still less strong dare hardly to cultivate a field, lest the enemy reap the produce. Moreover, through the length and breadth of the land, the slave trader, with his calico and presents to the powerful, and his gun, and powder, and slave stick for the weak, has for 1000 years carried desolation. Yet even more dreaded is the tyranny of the strong tribes, notably at present the Angoni and Magwangwara (of Zulu origin), who, descending like a whirlwind on an unsuspecting lage, perhaps fifty miles from their camp, with their fierce and unearthly cries, and their weird war-dress of feathers, and skins, and paint, strike terror and panic into their victims, even before they have raised the cruel spear to slay man, woman, and child. For to these fighting tribes, and all who aspire to any independence in the land, the coming of the dry season, and the burning of the grass, is the signal anxiously awaited for going on the war-path, just as you or I might go to the seaside. Arabs, and Angoni, and a host of minor tyrants are then let loose over the land. Each petty tribe goes for one weaker than itself. Lever's clever couplet holds good for the poor African savage—

"Greater fleas have lesser fleas upon their legs to bite 'em;
Lesser fleas have *lesser* fleas, and so *ad infinitum*!"

If, then, we wish to benefit Africa, disregarding for the moment the benefits which may accrue to our own pocket and trade in the process, the first step is to introduce some settled law and order. The establishment of each mission station has been singularly productive of this result. At Blantyre, the southern Angoni raids were turned aside, and expended their force elsewhere, at the earnest mediation of Mr. Scott. At Bandawé the Atonga have been free from the same enemy for years past, solely on account of Dr. Lawes' influence, and the promise he had won from Mombera, a promise that chief respected with Zulu fidelity, spite of the urgent remonstrances of his councillors. If any encouragement were given to British efforts in Nyassaland, and the influential promoters of the company, who lately sought for a royal charter, were supported in their plans, capital would come into the country, and the responsibility of maintaining peace and order would devolve upon those who have put forward these proposals.

But our Government must be firm in its opposition to German and Portuguese claims—in a country where neither of these nations has any right—either by exploration, residence, or discovery, to warrant its claim to be the suzerain power. All we ask is that this land, so long the sphere of heroic missionary effort, shall be declared to be beyond the sphere of influence of any nation but England. There will be no lack then of pioneers to open it up, and establish a police force which shall restrain the lawless tribes within their own territories. As regards the other element of discord—the Arab slave-trader—it is to Western civilisation that he owes the weapons which have made him so dreaded a power in the land. His is an influence for evil, which works by subtle means, sowing dissension between tribes—throwing oil on the angry flames of savage arrogance and impetuosity. Thus he fomented war, and reaps the benefits by securing, for a small consideration of calico, the women and boys captured by the victors. This curse has overshadowed the land for one thousand years. On the north, the south, the east, and the west light is now breaking in on the Dark Continent, and Britain is the foremost, as ever, in the task. It is almost the last of the great unknown lands, and it has fallen to our country and ourselves to open up the

vast area of this huge continent—between one-fourth and one-fifth of the superficial area of land in our planet. To me it seems a great matter and a great opportunity. Shall posterity look back with scorn on opportunities wasted, on duties shirked, on empire and commercial extension thrust into our hands and thrown aside by us for our rivals to take? Love of adventure and daring still live in the British race. We look back on the records of the Elizabethan age, and, as boys, we sighed for those times of mighty sea-kings, of golden El Dorados in America, Mexico, Peru, and California, of Indian pagodas, and of fabulous isles of the sea; and around us to-day the same dream is enacting, the same opportunities offer, and we heed them not. There is ample evidence that these lands yield gold and other lucrative metals. Their vegetable and animal products are rich. The country is not burdened with an over-population, as was India; and, beyond all, the moral duty devolves on us of supporting the men we have allowed to go and work in these countries, of checking this scandal to civilisation—the slave trade—which can only be put down by an era of law and order wielded by an all-potential power. But we are careless alike of the higher duties and of national ambition and commercial profit—careless of the

“Ill-used race of men that plough the soil,
Sow the seed, and reap the harvest of enduring toil,
Storing yearly little dues of wheat and wine and oil,”

till they perish. What matters it to us? What have we to do with those whose lives are spent to help these people? While we

“Sit in silence, looking over wasted lands,
Plague and famine, fire and earthquake, sinking ships, and praying hands,”

others are pushing forward, as I have already pointed out, with regard to recent Portuguese action.

Viewed from the point of view of our obligations to our Indian Empire, the opening up of a country like Nyassaland for Indian emigration would be the first and most important good we could confer on the African savage. At present he has no utensil except the hoe. The adaptation of the bullock to agriculture, the crude Indian plough, the introduction of a rough irrigation system, the field well, and the oil press, of certain Indian cereals, of many food and timber trees, of the cotton plant, linseed, flax and grain—all these are just adapted to the climate and the low stage of social development of the people. With these would come the money currency—supplanting savage barter—and rudimentary education in counting and writing, already spreading widely under mission influence and teaching.

Already I have occupied too much of your time. One word on a separate subject and I have done. On S. lat. 10°, close to the northern end of lake Nyassa, and on its western shore, is a little station named Karonga. The slavers found it a thorn in the side, and endeavoured to destroy it, and its brave defenders. Of this defence you have already heard. The Rev. L. Scott, of Denton, near Manchester, was one of the gallant six who held the place in the face of almost certain death, though escape was easy at first. His brother-in-law, Consul O'Neill, R.N., was the leading spirit in the little stockade. These men were the heroes, not I, as some have erroneously supposed. I joined them later, and helped them all I could. We had again and again given these slavers terribly severe lessons, and when I left they were in great straits. I went to make further arrangements, but was summoned home by telegraph at the wish of the directors of the Lakes Company. The little garrison then consisted of six men only, all sick. I hope and trust that the reinforcements I arranged for have by this time reached them. But I hear from various sources that someone has been sent to make peace at any price. This of course would be most easy to

effect if the Arabs are allowed their own terms, viz., to remain in extremely strong stockades, commanding the road to Tanganyika, and with a free hand to continue their raids for slaves on our friends and allies, the Wakonde, who saved our garrison from massacre, and to gain the prestige they would acquire from having beaten the British, for this is in truth how such a peace would be constructed by all the tribes. For my own part I fully believe that at the time I left they would have been glad to have come to terms satisfactory to ourselves—had we had the means of proposing them—so heavily had they suffered. The questions I would ask of you, as a most influential Society, and of the Manchester people, are these:—

Are our efforts to be nullified? Is the blood shed, British blood, the constant sickness faced uncomplainingly, the very rough time that the little garrison experienced, is all this to count for nothing? The question is a simple one. We wish to know whether this country, discovered by Livingstone, opened up by our missionaries and traders, and held against Arab aggression by British pluck, and at the loss of several brave lives, is to be ceded to Germany or Portugal, and the access to it cut off by preposterous concessions to the latter power? If this is to be so let the brave men still holding out against sickness, and under very trying circumstances, at Karonga, know the verdict of their countrymen, and let Germany or Portugal fight their own battles or leave them. Our good faith to our allies will be broken, an impetus will be given to the slavers which many years will not win back again, but it will *not* be the fault of the Karonga garrison. I have used every effort unavailingly. I ask you to demand a reply to these questions.

Eastern Africa, A Map of Part of, prepared by authority of the Imperial British East Africa Company, by E. G. Ravenstein, F.R.G.S. Scale, 1:500,000. Nine sheets. London: Printed and published for the Imperial British East Africa Company by George Philip and Son, 1889. Price 12s. The Imperial British East Africa Company could place the preparation of a map of her territory in no better hands than in those of Mr. E. G. Ravenstein. All friends of the Company and of the development of British enterprise in East Africa will welcome this important publication. Mr. Ravenstein has chosen for this compilation twice the scale of his well-known map of Eastern Equatorial Africa, 1:500,000, so as to include a much greater amount of detail. He has not only made use of the maps of the most recent travellers, but also the important notes of their descriptions, which makes the map a still more reliable one. Three inset maps are given. Sheet 3 contains a very detailed drawing of the region of the Kilima-Njaro; sheet 9 gives a plan of Mombasa—both are drawn on twice the scale of the map itself, 1:250,000. The third inset map is given on sheet 7, and indicates the region north of Victoria Nyanza and west of the Nile, on the scale, 1:1,500,000.—*The Scottish Geographical Magazine*.

The Dissolution of the "Afrikanische Gesellschaft in Deutschland."—It is announced in the current number of Petermann's *Mitteilungen* that the German African Society, which has been in active operation for the last fifteen years, has now ceased to exist. Since the German Government decided to apply the sums voted by the Reichstag to the scientific exploration of the German protectorate, and to carry out the task itself, the society could no longer find the means for equipping independent expeditions. That its share in the work of opening up Equatorial Africa has been considerable is shown by the following summary of its many successful operations: The first accurate survey of the Loango coast, Dr. Lenz's expedition up the Ogowé, the complete opening up of the South Congo basin by Pogge, Schütt, Buchner, Wissmann, Kund, Tappenbeck, Wolf, and Büttner; the crossing of the Sahara to Timbuktu by Dr. Lenz; Flegel's further exploration of the Benue, and his journey to the south; Rohlf's Kufra expedition; the surveys in Abyssinia, executed by the last-named traveller in conjunction with Stecker; the East African surveys of Dr. Kaiser; and, lastly, the exploration of the region between the Luapula and the Lualaba by Dr. Böhm and Herr Reichard.—*Proceedings Royal Geographical Society*.

WHAT GEOGRAPHY OUGHT TO BE.

By PRINCE KRAPOTKIN.

[Delivered to the Members, in the Memorial Hall, Wednesday, November 6th, 1889.]

THE CHAIRMAN (the Rev. S. A. Steinthal) said that the reputation of the lecturer was as wide as the civilised world, not merely in connection with social questions but also with regard to scientific subjects.

Prince KRAPOTKIN then said : Before dealing with the main subject I will give some explanations of the map of Siberia and Central Asia on a scale of 1 to 2,500,000, which I have prepared to illustrate my lecture. It represents my own views on the structure of Asia, and embodies the results of the last explorations of Russian geographers. The difference between this map (which is very much like Petermann's map of Asia in Stieler's Atlas) and those common in England is that, instead of covering Asia with isolated chains of mountains like the Alps or the Caucasus, it shows the extension of the two great plateaux of East Asia and West Asia, fringed by border ridges, and having on both sides a succession of high plains and, further down, of low lands. The Urals also appear as a succession of chains running either S.W. to N.E. or S.E. to N.W., thus embodying the last explorations of the Geological Committee and of M. Kuznetsoff in the north. Since geographers had endeavoured to make geography an exact science its field had been disputed by all kinds of specialists, such as the geologist, the meteorologist, the oceanographer, and the ethnologist. In such conditions the geographer had to take a broader view of his subject, and consider his science as the study of those general laws which govern all the above separate phenomena, and disclose their mutual dependency. However, this wide range would easily divide into, at least, four separate branches, each of which could be best cultivated by the geographer. There is, first, the study of the great laws which govern the life of the earth's crust and shape its surface ; the growth of continents, their figures, their orographical structure, the changes they are steadily undergoing, and so on. Then there is the study of the separate climates as depending upon the characters of the earth's surface and the local topographical conditions—a wide field, upon which MM. Buchan, Mohn, Woyeshoff, Hahn, Supan, and so many others are working with so much success. And, finally, there is the study of the laws which preside over the dissemination of animal and vegetable life, and those which governed the life and development of human society. It also has been remarked that geography was not a science, because it was a simple description of facts—a *graphy*, not a *logy*. But mere description is impossible—every description necessarily requiring some classification—and every attempt at classifying necessarily brings us to a study of origin and laws of evolution. This idea is illustrated by some of the recent explorations made in Siberia and Central Asia, each of them showing how a simple description of the orography, or the fauna, or the flora of a locality implies a study of origin and evolution. M. Chersky's geological and orographical exploration of Lake Baikal ;

M. Yadratseff's work on the rapid dessication of Lake Tchany; and M. Krasnoff's remarkable work on the flora of the Tian-Shan are so many illustrations of the fact that a simple attempt at describing facts of the present, involves the geographer in a series of researches into the past physical features of the country which he is going to describe. With regard to the flora of the Tian-Shan, it appears from M. Krasnoff's researches that during the earlier part of the post-glacial period the Tian-Shan and the great plateau were covered with a vegetation very much like that of Northern Europe nowadays, and, without entering into that much-debated question, it suffices to point out the bearing of that discovery upon the question as to the origin of the Aryans. It was said that the Aryans could not have come from Asia, because in their folk-lore mention was made of vegetation which rather belonged to a cold, sub-arctic climate, and not the dry vegetation of the steppes. It was true the Aryans could not have originated from the Asiatic plateaux if those plateaux had the same vegetation as now. But that vegetation was not the vegetation the mountains had had in the glacial period, or even in a later part of the post-glacial period. There was another duty which geography ought to perform, and that was to accustom people to consider that every nation had brought something most useful to the development of humanity, and not to consider that only a few nations were predestined to accomplish the progress of the world. Thus a great many national prejudices might disappear. Geography might also teach them that the lower races ought not to be treated as they are now—as enemies to mankind. They must consider the lower races as being a most precious element in our development, who ought not to be destroyed, as they were being destroyed, by whiskey, shooting, and extermination. He was persuaded that they might bring some new element into our life that we could not develop ourselves. Taking geography as an educational subject, everyone must have observed how much geography, which was an immensely interesting subject, was hated in schools as being one of the most annoying and uninteresting of subjects. Everything that concerned man was interesting to children. Geography might become one of the most powerful levers for inducing a taste for natural science, and a desire to study its laws, on the part of children. They could not interest children merely with classification of zoology and botany, but they could interest them with zoology and botany if they went through man and his habits, his hunting, and his life in different countries. It was much more advantageous not to begin with the description of minutiae, but rather to begin with some broad general ideas on the structure of the earth, and then to return to a description of particular localities. Again, the advocates of classical education laid stress on the claim that that kind of education imparted to the pupil a human view of mankind. He thought that geography could do it better. What could be better than a description of the habits of all the tribes disseminated over the surface of the earth to interest the children in mankind? From this humanitarian point of view geography was a most formidable substitute for Latin and Greek. Finally, geography might become, in the hands of an able teacher, a kind of summary of all knowledge acquired in school in separate branches of natural science. It was not a simple coincidence that the *Kosmos* was written by a geographer. It is the duty of the teacher in geography to show the mutual dependency of all separate branches of knowledge studied in school, and to apply them to the study of the surface of the earth and its inhabitants.

The Rev. L. C. CASARTELLI, in proposing a vote of thanks to the lecturer, said he thought the Prince's remarks with regard to the cradle of the Aryan nations were extremely valuable.

MR. J. HOYLE TODD seconded the resolution.

Mr. SCOTT COWARD (Her Majesty's Inspector of Schools), in supporting the motion, said he cordially agreed with the ideas of Prince Krapotkin, which, if they could only be embodied in the educational system of the country, would produce in geography far different results to those which it was his misfortune often to witness. He did not say a single word against the results except that those results were produced without adequately prepared instruments. It was an admirable thing to interest children at the most impressionable period of their lives in their fellow-creatures separated by remote distances, because the very remoteness lent a charm to the subject. He did not hesitate to say that at this moment the geography taught in English schools was not sufficiently attractive. They had a number of names strung together, but what charm or what poetry had mere names? They had a number of definitions of promontories, capes, and rivers, but these were only the dry bones of geography. They were not on the right tack; they wanted a great deal of the play of imagination brought in, for with that play of the imagination they brought out the poetical and romantic powers of the child, and did him an immense power of good.—The resolution was passed, and a vote of thanks to the Chairman concluded the proceedings.

East London, South Africa.—Mr. James McCoubrey, formerly of Spital Tongues, Newcastle, writing from East London, South Africa, to the *Newcastle Chronicle*, says: "East London is a very thriving place, and if it continues to prosper as it has done during the past five years, it will soon be the leading town in the colony. There is only one drawback to its rapid advancement—that is its harbourage; but this only requires time and enterprise to make it the next best harbour to Cape Town. I believe that East London is one of the most important and healthiest towns in South Africa. It is a favourite sea-bathing resort, and there are many delightful spots in the neighbourhood. The town is fairly laid out. Some of the buildings are good, and of a substantial character. The railway locomotion and construction works are also good. Schools are of an advanced character. Since I have arrived at East London I have learned that it is a common thing to see churches open for prayers for rain. There had not been a good shower of rain for twelve months, but at last it came. All rain water is used here for food. It is as clear as crystal and splendid to drink. The weather is very hot, but we have cool winds from the sea. The heat up country is great. Fruit can be had in immense quantities—far beyond the need of the population. Oranges, peaches, and apricots are in many cases allowed to drop to the ground and rot by the ton. The fruits grown in profusion are oranges, lemons, pine apples, bananas, apricots, peaches, plums, pears, grapes, strawberries, gooseberries, figs, pomegranates, walnuts, almonds, citron, mulberries, &c. Vegetables of all kinds can be grown with little or no trouble if rain be plentiful. But I don't say this is a bed of roses. Far from it. It appears to be a lovely place to read of, but almost the opposite when it is seen in reality. South Africa is a good country for a man who knows how to work in an honest way, who does not stick at trifles, and who keeps himself respectable and sober, as a man ought. A good many who come over think they have nothing to do when they get here but eat the fat and drink the best of the land. That is where their mistake lies—at least, I have seen it so. There is great talk at present of the gold fields near here. We hear a good deal of the diggings, as the bullock waggons pass our house every week. It is quite true that men get from 20s. to 40s. a day up country. As to the work, it is hard; but you soon get used to it if it does not knock you down at the beginning. Sleeping in a tent is not so bad. Hundreds are sleeping on door-steps who cannot find a shady place on the road to lay down their heads. It is a common thing to give from 15s. to 30s. for a bed for one night. Living is very dear, especially at present, as fever is very bad. It is no object of mine either to cry up or run down South Africa as a field for emigration, but I desire to lift up a warning voice concerning the dire temptations and miseries to which young and friendless people are exposed in the larger towns of South Africa."

THE PORTUGUESE POSSESSIONS OF THE SOUTH-WEST
COAST OF AFRICA, AND PARTICULARLY OF ANGOLA.

BY JOSEPH RIPPON, A.I.E.E.

[Read to the Members in the Library, Thursday, November 7th, 1889.]

Now that the many parts of the coast and the interior of Africa are attracting so much attention in Europe, matter, however superficial, from frequenters of these places must be of interest. Angola, a Portuguese colony on the south-west coast of Africa, is not very much heard of out of Portugal, but it is considered by this country to be much as India is to us—a bright gem in their crown—and the present activity shown by its government will, it is hoped, lead to a great development of the country's resources. It will be seen by referring to a map of Africa that Angola extends from the Congo river on the north and southwards to Cape Frio; and a small patch hemmed in by French territory on the north and the Congo Free State on the south and east is, as well as the islands of St. Thomé and Príncipe, under the same flag as the rest of Angola. The best part of communication is kept up with Europe by means of good steamers (Portuguese), Lisbon being the point of departure, and the intermediate ports are the islands of Madeira, Cape de Verde, St. Vincent, and St. Iago, Príncipe, and St. Thomé, and the coast settlements Kabenda, Ambriz, Loanda, Benguella, and Mossamedes. However badly found they may be, they possess advantages which the steamers leaving Liverpool do not—viz., some attempt at fixed dates of arrival and departure and speed. The value of these advantages to business men and travellers is enormous. I purpose describing the places as they come "outward bound." The steamer, then, first touches Africa at St. Vincent (one of the Cape de Verde Islands). It is an arid island, but coal is obtained here. She then proceeds to St. Iago (another island of the same group), a place of little importance, and which during August presents a dry appearance, only relieved by verdant gullies between high volcanic peaks. Oranges and other fruit and vegetables are brought in by the villagers for the town supply every morning, and some quantity is taken by a line of small steamers which ply between these islands and Lisbon. Altogether there are about 50,000 inhabitants scattered over the island. The town of Praia is the chief one, and is made up of about half-a-dozen streets. The houses are small, but kept in good order. Later on, when the rains come, the island presents a different aspect—that of a garden. There are hospitals, a pier, the inevitable large Custom House (it is, of course, a Portuguese possession), and other government buildings, full of officials and soldiers.

From the ship's deck the Island of Príncipe, in the Bight of Biafra, presents a picture peculiar to nearly all tropical formations—a patch of verdure. But the nearer one gets the less this delight becomes, for there lurks malaria in every corner of this garden. The Portuguese delight in placing their settlements in a quiet sheltered nook; and at this port steamers of any size have to anchor at about the distance of one-and-a-half miles, at the mouth of a long narrow bight. The town at the head is

dilapidated, and of little importance. It is hemmed in by high hills, and it must be a veritable oven all the year round. It also stands on a fork of land formed by two mountain streams, where—consequently in front of the town—is deposited generations of decayed vegetable matter. Fresh provisions are scarce. Cocoa is the chief export; but little is done, as no labour will come to the island, and there is little upon it.

The island of St. Thomé is as pretty and far more flourishing. The hills are covered with coffee plantations, and the exports to Lisbon are important. The low-lying town is a malarial bed, and the heat is, day and night, intense; but on the hills it is practically healthy and delightful. Fruits and flowers, both tropical and sub-tropical, are growing wild. Much fruit is lost entirely for want of labour to collect it. The Kroo and other boys from the coast of Africa say they are not allowed to leave on the termination of their contract, and will not, therefore, come here at all. This labour, notwithstanding our energetic ideas of the amount of work that should be done, and considering the deteriorating effect of the climate upon any human system, is good; and their value, to my mind, is got out of them. A Krooboy may receive up to 20s. a month, 1½lb. of rice per day, fish every alternate day, and the great



Fort of St. Miguel, Loanda.

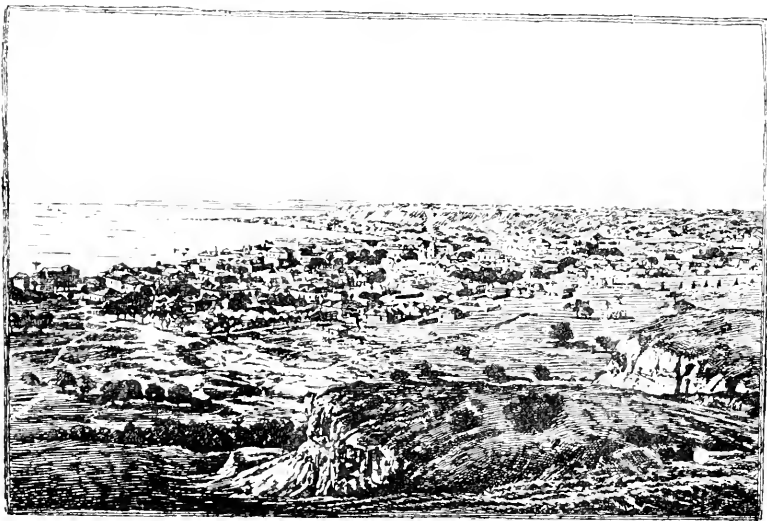
(Taken from the Island opposite Loanda. From photograph by Mr. J. Rippon, C.E.)

luxury of meat on Sundays. Unfortunately steamers have to lie in the roads, and loading and unloading is slow and expensive. There is only a short pier running out from the Custom House to beyond the breakers.

Two days' steam brought us to Kabenda, the port of the small patch on the mainland north of the Congo. It is tolerably healthy, and I daresay well known to many here as taking Manchester goods for traffic on the Congo. The chief house is an English one, and they possess good steamers for the purpose I have mentioned.

Banana is the port of the mouth of the Congo, and the turbid waters of this mighty river give notice of its existence for miles before the many islands, formed by a continual alluvial deposit at its mouth, are in view. Banana is then made up of one hotel and "factories." It is now the depot for produce procured up the river, which is shipped by some English and German steamers and all the Portuguese lines. Some of the former, however, go further up the river to Boma, the capital of the Free State, &c.; but my paper is about Angola, and the problem whether the Congo will for many years to come be of much use to us, is one in very able hands at present.

The Portuguese possession then begins again on the south side of the river, and their first settlement of St. Antonio is a poor one, and composed only of a few mission-houses and the usual official residences. After passing the lighthouse and small places *en route*, the next port of call is Ambriz. Here there is a small pier in a bad condition, and boats are run through the surf on to the beach. The town is a small one, but looks as if it had some life. On the north is the river Loge, but it is only navigable for small boats. Outside of Ambriz communication is stopped by the natives, and although Loando is only some sixty miles south, there is still no practical communication between the two places. Telegrams which were on the coast from Europe in two hours occupied twelve days in transit and detention between these two ports. However, the natives come in with ivory, rubber, &c., which they barter for cotton goods, guns, &c. The town lies high, but I could not find that it was any more healthy than Loanda. In fact, it seems impossible, so far on this coast, to get away



Loanda, the lower city. (From photograph by Mr. J. Rippon, C.E.)

from malarial troubles, whether on the plains or upon eminences, but so soon as the coast and its deposits are left behind then comparatively healthy places are found.

São Paul de Loanda is the capital and the seat of the government, and is, to my mind, a city that should claim a good deal of attention at the present moment. Under the guidance of one of the most polished and amiable governors and an energetic and liberal-minded mayor, whose aims are the full development of the rich country surrounding them, the result must, if they are permitted to continue their wise course, be very successful. Monteiro writes, I believe in 1875, and his description might be taken to-day; but there is now coming on a leap towards activity which apparently was crushed out of the people when slave dealing was abolished. The entrance to the harbour is well lighted and can be entered at any time, and it is made by a rapidly-forming sand spit, on which the sea breaks, running parallel with the mainland, and

leaving the only entrance for ships of large size. Monteiro says that on this spit an expert was brought out to plant palm trees, but before many were placed he was exalted to the post of Postmaster-General. However, if this is so, it is a pity such a profitable and beautifying project should have been abandoned. On this island are the naval quarters and coal deposits. Looking at the town from the harbour, the many-coloured sandstone pinnacles and cliffs form a pretty view. It contains about 23,000 people—3,000 whites, including over 800 convicts (it is a convict settlement), and the rest black. The plain, from the beach to the base of the cliffs, is covered with the principal houses of business, custom-houses, and some residences; and the upper city is connected by many good roads. Here are the houses of most of the well-to-do people, the public gardens, government houses and offices, and one of the best hospitals to be found. The native quarter again is distinct. Under the present crude system of sanitation the upper city is the only part fit to live in, and even here I question much the good name this place has for being a healthy one, as the climate is changeable. There are two seasons, winter and summer, the former from May to September. The average temperature is 75° Fah., and from October to May it is intensely hot, the two worst months being March and April, when the temperature may run night and day over 90° Fah. There is very little rainfall, but often thick mists during the cool season. It will be some time before the lower city can be made fit to live in, and the general appearance at present is one of dilapidation, many buildings being but half built and overrun with weeds, and others gradually falling into decay. There are being developed Government works for the repair of steamers, &c., but the price for work done and the workmanship must be doubtful until good skilled workmen can be obtained. The only existing bank is the Banco Nacional Ultramarino of Lisbon (London agents, Merchant Banking Company). The rates are high. Buying on Lisbon at sight 1% discount is charged, and the same on England for cheque is 4s. 6d. for 1,000 reis, the value of which is at par 4s. 5½d. It is difficult to obtain gold or silver and the bank exchange for notes, provincial government notes, which are only negotiable outside this province at a discount.

One great scheme likely to revolutionise the country is now, after the usual struggle, becoming an accomplished fact. This is the railway. It has an ambitious name—the Royal Trans-Africa Railway—and its terminal points are Loanda on this coast, and at present Ambaca is the eastern one. Its history is very interesting. In 1848 two Portuguese and a German projected this railway, and from '62 to '64 engineers were sent for a survey, and the project dropped again. In '73 it was resuscitated, and in '74 a concession was granted to put down to Golungo Alto. Another one was given in '75 for the Barraca line, via Oeiras, Lucalla, and Ambaca. These two joined and petitioned the Portuguese Government for another concession from Loanda, via Barracas and Oeiras, to Ambaca; and in '75 another survey was made. In '77 a commission was sent to examine the region between Lucalla and Ambaca. During '78 to '82 the original idea projected in '48 was being fought by their opponents, who contended that the present sea connection was sufficient for carrying off the River Quanza (the mouth of this river is 50 miles south) produce, but after the railway scheme in '82 had been brought before the Geographical Society of Portugal a concession was finally, at the end of '85, obtained, and the work of construction of a line from Loanda to Ambaca was inaugurated in '86, October 31. The shares are guaranteed 6% for ten years on estimated cost of construction, and I believe the scheme was floated in London, Paris, and Belgium. The distance from Loanda to Ambaca is 350 kilometres, say 210 miles. There is some tunnelling to be done, between 200 and 300 kilometres, but otherwise there is no engineering obstacle. The maximum grade is 2½%; gauge, 1 metre; engines, 20 to 22 tons weight, all

Belgian make. The only obstacle on the plain as far as the hills is the climate, and this kills off a good many foreign engineers and labourers. After kilometre 140 has been reached, the coffee plantations, and also the rubber parts, will have been tapped, and the existence of a railway will, it is naturally supposed, free an immense number of carriers, leaving them available for labour which is so much needed on the plantations. The cost of carriage will also be reduced by fully two-thirds. The present passenger rate is equal to about 2½d. per mile, third class. The following is a general idea of the route. Passing from the suburb of Loanda, called Penedo, it runs along the back of the town towards the upper city, and then sweeps round back again to the seacoast (which, in my mind, it had no need to leave) at Cacuaco; thence it follows the beach to the river Bengo, where it strikes Quifongondo; thence up the valley of this river as far as Cabiri, when it runs off to the Quanza river, meeting it at Cunga, on kilometre 110.

The waterworks plant has been placed at Quifangondo, distant from Loanda 30 kilometres (18 miles), and pipes have been laid to filters to the cliffs overlooking the city, and from thence house and street connections have been made. This work has been done by the Cie. Général des Conduites d'Eau de Liège. This is a doubtful benefit, as there are no pipes for carrying off used water.

Land telegraphs connect inland villages, but communication is slow and unreliable. Cable communication is possible via the Cape of Good Hope and Aden, or more direct northwards, along the coast and St. Vincent or Cadiz.

Portuguese colonies rely upon their custom-houses for obtaining funds. Here a vessel of 600 tons in port ten days would be charged for customs and other dues about £23; a steamer, say of 1,000 tons, for the same time about £21. From statistics I find that the total value of exports in '87 was about £250,000. The exports from Loanda are not bought there. They come almost entirely from the Quanza river. A little over £5,000 only came direct to England. Holland takes a larger share, and Portugal practically the rest—viz., about £160,000. The collection from the natives, &c., in the interior is very general. Coffee, ivory, rubber, vegetable oil, palm kernels, sugar, and orchilla weed are the principal. The value of exports from Ambriz would probably be about £60,000. In exchange for this the natives take cottons of all kinds, guns, powder, hatchets, knives, beads, &c. About the cotton goods you are well informed. The guns are German and Belgian make.

England heads the list of imports, and in '87 paid a duty of £52,894 upon a value of £191,838. Portugal follows next, value £54,393, and duty £5,776. The duty upon exports is 3% on produce shipped by Portuguese vessels, and 5% for foreign vessels. There is only one English and one Dutch house in Loanda. The rest are nearly all Portuguese.

The country from the coast for some distance is arid, and relieved only by a few trees, the caju and the curious baobab, and short brushwood. I should think it suitable for the cultivation of mandioc and indigo. Sand blows down upon the lower city, and the roads built hundreds of years ago are now being resuscitated. They were in some places covered to the depth of over four feet. Life of any "useful" kind is very scarce. A few pigeons may be got, and occasionally a bird of what we termed "an unknown species" was bagged. The rivers and swamps of this low-lying plain are full of crocodiles; and the swarms of mosquitoes given off on any disturbance are too trying for outdoor sport. They are not the largest, but they are decidedly the most voracious insects anywhere to be found, and leather is not too tough for them to penetrate.

The Fetish religion of the native has too often been spoken of to be mentioned here. It will die out in time. A perfectly wild black is generally a gentleman.

Coast settlements south are Novo Redondo, Benguella, and Mossamedes. The produce imported and exported are the same, and for Mossamedes they amount to about £28,000 imports and £17,000 exports. Benguella and Novo Redondo are below this.

Although Mossamedes is a very sandy and uninteresting place, it is healthy. Emigration is encouraged to this place by Portugal and other congested colonies such as Madeira. An engineer has made a survey for a line of railway of 200 miles, but when the project may be carried out is uncertain, there being a vast deal of thought given by this country's experts before commencing an undertaking, or rather giving it to foreigners to carry out.

Death of Sir Salar Jung.—The death is announced of Sir Salar Jung, Prime Minister of Hyderabad. A correspondent writes: "Sir Salar was the quasi hereditary Prime Minister of the Nizam's state, and his quarrel with the Nizam two years since had sufficed to cloud the last two years of his life. He lived in the Deccan a life of feudal magnificence, his palace in the old city of Hyderabad being perhaps more spacious than that of his titular sovereign the Nizam. He was a young man of progressive views, and entertained Lord Randolph Churchill most magnificently when the latter visited India four years ago. Sir Salar was a most enthusiastic admirer of Mr. Gladstone, and his articles in the *Nineteenth Century*, in 1887, on the success of the federal system in Austria, and suggesting the policy of its extension to the entire Balkan Peninsula, elicited Mr. Gladstone's approval, and further gave such offence to the Sultan of Turkey that, it is said, the *Levant Herald* was warned not to comment on them. As Minister Sir Salar was too politically independent to secure the Residency influence, which, indeed, was generally exerted to thwart his wishes, as was the case also in his father's time."—*Manchester Guardian*.

The "Universal Hour."—Subjoined is the text of the proposals of the Bologna Academy of Science concerning the initial meridian for the universal hour, to be discussed at the forthcoming Geographical International Congress at Paris: (1) That the *status quo* be kept in navigation and astronomy; in other words, that navigators and astronomers should have full liberty to make use of the initial meridian they judge best. (2) That a double graduation be introduced in the geographical cartography of the different nations; the one in black lines, as usual, the other in red lines or spots, the first for the national meridian, the second for the universal initial one, or *vice versa*. (3) That the universal initial meridian be a neutral one; that is, of an international character, and not crossing any existing observatory, as this would forcibly imply a scientific pre-eminence of the nation to which it belonged. Let, rather, later on, either an international observatory be established at the place giving its name to the initial meridian, or a series of observatories be established along it belonging to the different nations whose line is crossed by that meridian. (4) That without further delay the universal hour be applied, together with the local one, to telegraphy. It would be enough for this purpose that henceforth every telegram should distinctly show, besides the local hour, that also of the initial meridian agreed to. All those who do not wish for any innovation will then find that everything goes on just as before, whilst bankers, merchant people, meteorologists, political men, journalists, and the like will have the advantage of being enabled to ascertain without any difficulty the moment of the sending, the several fluctuations in the stock market, and, finally, the duration of the transmission. (5) For any further application of the universal hour, considering that its urgency is not so evident as in the case of telegraphy, take experience as the guide, and let, at any rate, the interests of every nation be respected. Perhaps it would be advisable that the marine charts published in future, or simply republished, should bear also the double graduation mentioned above, and that ephemerides be published based on the universal initial meridian. In any case, however, the fullest liberty should be allowed as to the use of the same. (6) Finally, as regards the initial meridian, the Bologna Academy of Science has already proposed, and proposes again, the choice of the Jerusalem meridian.

GEOGRAPHY.

By Mr. CHARLES MARVIN.

[Address to the Tyneside Geographical Society.* Read to this Society, in the Library, Friday, December 20th, 1889.]

THE value of geographical knowledge he would assume to be admitted by everyone present, and would confine his remarks to the value of provincial institutions started of late years to place that knowledge within the reach of those who were outside the sphere of their great metropolis. Now-a-days, owing to the facilities for travel, and the extension of intercourse between our little island and the rest of the world, there were few people who were not called upon at some period of their lives to proceed abroad. When such an occasion arose, he was convinced that he only re-echoed the opinion of everyone present when he said that it must be an unquestioned convenience to be able to proceed to such an institution as the Tyneside Geographical Society and find there obliging and competent officials ready to place at the disposal of the inquirer the latest books and maps dealing with the country in question, and imparting information obtained first hand from travellers. Again, now-a-days competition abroad compelled merchants and manufacturers to be constantly seeking for fresh markets. Here, again, such an institution as the Tyneside Geographical Society performed a useful function—a function that should be recognised and recompensed by all commercial men, a function which was illustrated by the bringing to Newcastle of travellers recently arrived from newly-discovered countries, enabling the merchants and manufacturers of the district to hold personal intercourse with them in regard to the regions just explored. In Germany and in France this useful function was performed by commercial and geographical societies, and in this country it was sometimes, but only, he was sorry to say, in a casual and spasmodic manner, performed by our Chambers of Commerce. It was here that the Tyneside Geographical Society stepped in and did very useful service, and he believed he was not unduly optimist when he said that the more the commercial men of the North supported the society the more effectually would that society be able to promote commerce by obtaining information relating to the development of trade in new markets and in foreign lands. Thirdly, the Tyneside Geographical Society was calculated to render important service with matters as yet but dimly appreciated by the British people. Every year competition became keener at home, and the superabundance of population compelled every wise father of several sons to think in good time of giving at least one or two of them a chance in the colonies. Formerly, a father, if wealthy, confined his attention to the army, the navy, the church, and the professions. Now-a-days he added the colonies. This fashion of sending sons to Canada, Australia, or South Africa was extending from the wealthy to the middle classes, and he trusted that in time it would become common among working men. They might depend upon it that if a father in good time prepared and sent a lad to a British colony, he gave his son a better chance in

* The remarks of Mr. Marvin on the uses of the Tyneside Society apply equally to ours.

life than he had at home as a clerk. In making a choice of a colony, both father and son would be more liable to be properly guided if they had been members and attended the meetings of the Tyneside Geographical Society. And the lad would be more at home on his arrival in Canada, Australia, or South Africa, if he had frequently listened to lectures and read the books in the society's library dealing with those countries. The society was thus calculated to be of extreme use to the middle classes and the masses, and, in the shape of a colonial inquiry office, could render valuable aid to those who had many sons and did not know what to do with them. Finally, there was the political value of the society. A diverting and surprising work might be written on the blunders perpetrated by our statesmen and generals through their ignorance of geography, and his own opinion was that three-parts of the failures of the British foreign policy arose from the extraordinary ignorance of the average statesman and member of Parliament of the geography of the empire over which they were called upon to rule. In this respect they were at a disadvantage with foreign statesmen, that while geography was neglected, he would add criminally neglected, in English schools, it was so thoroughly taught in Germany and Russia that the statesmen of those countries were better able to extend their interests and to negotiate treaties than the average English ambassador or envoy. Mr. Marvin concluded his preliminary remarks with a hope for the continued success and prosperity of the Tyneside Geographical Society.—*Newcastle Daily Chronicle*.

Italian Interests in Africa.—Prof. Guido Cora, of Turin, has drawn up a table of Italian dependencies in Africa:—

1. POSSESSIONS—	English Sq. Miles.
Massowah, with Keren and Asmara.....	3,000
Dahlak Islands	425
Assab, with Raheita and Beilul	5,500
	<hr/> 8,925
2. PROTECTORATE—	
Habab, Bogos, Beni-Amer, &c.	10,000
Danakil Coast and Isles	6,500
Sultanate of Opia, Seaboard.....	13,500
	<hr/> 30,000
3. SPHERE OF INTERESTS—	
Interior of Danakil and Sultanate of Aussa	31,000
Interior of Opia	33,000
	<hr/> 64,000
Total.....	<hr/> 102,925

To these must now be added the protectorate over Abyssinia, with Shoa, and the Galla District, conquered by King Menelik, equalling altogether some 200,000 square miles. Hence the total area of the regions for which Italy is responsible is about 300,000 square miles, or nearly three times the area of the Kingdom of Italy.

L. C. C.

THE RESOURCES OF SIBERIA AND THE PRACTICABILITY
OF THE SEA ROUTE.

BY H. N. SULLIVAN, F.R.G.S., of London.

[Read to the Members, in the Library, Friday, December 20th, 1889.]

IN considering the question of opening up any new field of trade, we should inquire (1) Whether there are reliable and inexpensive means of communication. (2) Whether there is a profitable commerce possible with the country, a demand for our goods, and a supply of produce that the country can give us in exchange. (3) Whether there are likely to be obstacles or facilities put in our way by the inhabitants and government of the country. If these three questions can be favourably answered, then there is scope for enterprise, and success will depend upon the capital at the command of the adventurers, the ability with which they conduct their operations, and the perseverance, patience, and energy with which they meet the difficulties, disappointments, and temporary failures that are sure to arise in the early days of any undertaking. From the days of Willoughby, in 1550, a north-east passage has been the dream of many navigators. The Norwegian fishermen were in more recent years attracted by the walrus fishing toward the Kara Sea, and penetrated that water. Captain Wiggins, as is well known to most of you, for many years held the idea there was a possible open route to Siberia in this direction, but he had not, at first, means at his command to carry out his idea. At length, in '74, Wiggins was able to fit out an Arctic steamer, the *Diana*, cruised two months in the Kara Sea, reached the mouth of the Obi and Yenisei, and came back to England announcing the route was open. Besides being practically the first navigator to reopen the door to these regions, he is the only navigator who has persevered, and so many as five times carried out successfully his plans—so far as the sea route is concerned, the only man who has stuck to the work, the one who has, I believe, most clearly solved the problem of navigating these waters with certainty every summer. Much as I should like to describe all the expeditions that followed Wiggins, I can on this occasion only briefly refer to them. In 1875 Professor Nordenskjöld, who was backed up in this enterprise, as in his previous Arctic expeditions, by Oscar Dickson, the wealthy Swede, accompanied by two other scientific men, following Wiggins's track in a sloop, reached the mouth of the Yenisei, ascending it (I believe in the Russian steamers), and returned overland. Capt. Wiggins also made an attempt this year. With the assistance of some friends he equipped a little cutter 45 feet long. He sailed much later than Nordenskjöld, and, meeting with continued heavy north-east gales, he was beaten back from the Kara Sea. In 1876 the two navigators, in friendly rivalry, again started. Nordenskjöld, with the munificent Oscar Dickson again at his back, sailed in the steamer *Ymer*, reached the mouth of the Yenisei, and was fortunate enough to catch the Russian river-trading steamers, and sent his goods in them to Yeniseisk. Capt. Wiggins, only a week or two behind him, in the *Thames*, a steamer he had fitted out with the help of some friends, including Mr. Charles Gardiner (who had himself navigated the Kara Sea in his yacht, and who has continued to give some support to all our recent undertakings), ascended the river

as far as the Kureika River, which was wrongly pointed out to him as a safe wintering place. Leaving his crew in comfortable winter quarters, Wiggins sledged to Europe, and came to London, in hopes of organising further work. He returned to his ship, after a few weeks in England, accompanied by Mr. Seeböhm, the naturalist. This gentleman describes the width of the Yenisei here as $3\frac{1}{4}$ miles broad, the Kureika one mile where it entered the Yenisei. The natural forces displayed by the spring breaking up of the ice are described as dwarfing those of Niagara into insignificance. Fancy the whole river $3\frac{1}{4}$ miles broad rising 70 feet. The ice was piled up near the Thames 60 feet high. The poor Thames, in her unsafe quarters, was ultimately somewhat damaged, and Captain Wiggins sold her to the Russians. There was a little vessel, the *Laria*, built at Yeniseisk, that Captain Wiggins desired to return home in, but the crew would not venture. However, the Russians themselves sailed her through the Kara Sea to Europe and reached St. Petersburg. This was in 1877. The same year, other nations being attracted to the work, we have the *Louise* and *Fraser* steamers, the *Fraser* going to the Yenisei and returning, the *Louise* going to the Obb.

In 1878 we have a number of successful voyages. Wiggins's voyage from Liverpool in the *Warkworth* to the mouth of the Obb and back to London with a cargo of wheat. Nordenskjöld in the *Vega*, in which he accomplished the north-east passage. Accompanying him, the *Leua*, which went up the *Lena* to Yakutsk, the *Fraser* and *Express* sailing ship which went to the Yenisei and back to London. The *Neptune*, which went to the Obb and back. The *Sibir*, built at Tjumen on the Obb, came to Europe. The *Moscow* paddle tug to Yeniseisk. The *Zaritzka* to the Gulf. This shows five years of consecutive practical navigation by sixteen vessels. In 1879 we come to the first failure. Against Wiggins's urgent entreaties the merchant he took to the Obb in the *Warkworth* chartered five large iron steamers totally unfit to meet any ice. They reached the Kara Straits, which were then blocked by ice, and after waiting a few days returned to England. But three days after their departure the ice all cleared away, and the *Louise*, which was also there and had waited, went through to the Obb and back again, thus showing the work could be done even during such a year when there was more ice than usual. 1880: *Neptune* and *Louise* to Obb and Yenisei. *Siberiakoff* lost *Oscar* Dickson through mismanagement. 1882: *Varna*, sailing ship, got beset. Lieut. Hovgaard, in the Danish steamship *Dijmphna*, seeing the *Varna* in the ice, went into the pack to reach her, and got beset himself. He afterwards announced that had he not left the clear waterway, he could easily have reached the Yenisei in 1882, and again in 1883 after he was freed that summer. His observations during the winter spent in the Kara Sea show that even in winter this sea is not frozen over, for the pack he was beset in drifted here and there during the whole period. In 1883 the *Louise* also got to the Obb, but she lost her funnel in a gale, could not steam, and was stranded on a sandbank in the Gulf of Obb. Thus we have, over ten years, the record of twenty successful voyages, the failures unimportant. There were two or three attempts made by *Siberiakoff* and another, which did not succeed, but I firmly believe these failed more through unskilful navigation and through ignorance of the set of the ice in these parts than through any impracticability of the route.

Summing up the results of these expeditions, I fully believe that Wiggins's theory is well founded. The results lead us to this conclusion. The Kara Sea itself offers little difficulty to navigation, although sometimes the straits leading to it may be temporarily blocked by ice when long-continuous north-easterly winds have collected the ice and driven it down into this corner, whence it has little room for exit. The work should not be attempted without proper Arctic steamers, so that a passage may be forced on occasions that iron steamers would be turned back. Besides, the effect

of butting a piece of loose ice during dark or fog would probably be fatal to an iron steamer, harmless to a wooden one. A knowledge of the general movements of the ice in the Kara Sea is necessary. On temporary closing of these lower straits, some ships have taken the Matotschkin Straits, with sometimes good, sometimes bad results. Wiggins is against this route, and from the accounts of some attempts I am led to think that there is often, but not always, ice akin to the middle pack of Baffin Bay, which prevents ships coming through this strait crossing the Kara Sea, whilst there is free passage from Kara Straits, and always open water down the west side of Yalmal. Mr. Gardiner found this in 1876, when Wiggins and Nordenskjöld crossed without opposition. Again, although I fully believe in the possibility of every year crossing the Kara Sea, should it be impossible, I think we might round Nova Zembla. In the worst years for the Kara Sea recorded, 1879 and 1882, Captain Markham, R.N., and Mr. Leigh Smith found the north end of Nova Zembla very clear of ice. This, of course, is a longer route.

VOYAGE OF S.S. PHŒNIX.

After hearing Captain Wiggins's lecture in 1884 I studied the subject, and, at length, in 1887, succeeded in getting sufficient support from my friends to purchase and equip the s.s. *Phœnix*, and buy a small cargo. I sailed with Captain Wiggins on 5th August for the purpose of superintending the commercial arrangements, and for inspecting the country. We saw no ice but on one occasion, and, with our steamer drawing 11 feet water, without much difficulty ascended the magnificent river. We fortunately picked up a young doctor at Dudinka, who offered his services, and as he spoke French we were able to communicate in a roundabout way with the fishermen, who acted more or less successfully as indicators of the channel. Coming to the village of Silivanika, where the religious sect of the Scoptzi dwell, we decided to leave much of our salt here. We heard that there was a difficult pass at the junction of the Tungoos River, and that there were cataracts and very little water—only 5ft. We discharged half our cargo, lightening to 8ft., and there was a great desire to put out all, but I did not care to take only an empty ship to Yeniseisk, and decided we would keep the rest on board—at any rate, until we found we could not get on. We heard of a certain pilot who had discovered a new channel, and I went up two days steaming in the launch, with the doctor, to procure the services of the man. Fortunately finding him, we quickly ran down, the pilot on the way sounding over a ridge of rocks, the shallowest part of the river, over which the pilot Nestor said there was usually only 8ft., but owing to the greater height of water that year we found 12ft. Coming to the steamer, we then began a task which taxed the skill and steadiness of captain and crew and the strength of our engines. The Yenisei here passes through high rocks, on the top of which the wrecked timber showed where the spring flood sends the ice among the trees. The centre channel is deep, and the stream runs fully seven knots, according to Captain Wiggins's calculation. The local steamers have not sufficient power to stem this current, and, being of light draft, take a five-foot channel inside some islands, where the stream is much slower. No one had ever been down the main channel, which was believed to be encumbered with rocks, forming cataracts, until Nestor bravely ran down in his boat and found a deep water channel. The swirling of the water caused by the swiftness of the current perhaps gave the idea of the cataracts. Slowly the *Phœnix*, with engines working their utmost, stemmed the current, and soon we could boast of having taken the first steamer up this main channel. Our good friend Nestor then left us, and we went on in our usual way until we had accomplished the 1,500 miles of river to Yeniseisk. I cannot stop to dwell upon the interesting features of our journey. The river, at this distance

from the sea, is a mile broad, and forms a water highway unsurpassed, I believe, in the world, for it is navigable almost into Chinese territory. I may here mention that the failure we experienced last year was not caused by any impediment in the Kara Sea, but solely through the grounding of the Phoenix in the Yenisei. We were informed that she could not be got off. We had calculated the chances of such an accident, but could not procure the necessary funds to guard against it, as we desired, by sending with the Labrador a second tender, with which to tow a barge with our cargo up the river, should the Phoenix not meet the sea steamer at the mouth. When the accident happened I then was able to pick up and send out a paddle tug passenger boat, but this caused a month's delay. In a gale the steamers separated, and missing each other at the rendezvous, the tug Seagull returned to Vardoe. Meanwhile the Labrador found some ice in the straits, but after the lapse of a few days this all cleared away, and she went easily into the Kara Sea, which she found quite open. The walrus vessels reported that they had been as far north as the 75th parallel in open water. Captain Wiggins did not go on to the mouth of the Yenisei, which he could easily have done. It was then the 26th September, and late in the season, and no object would have been gained but the proving of the openness of the route, about which he had quite sufficient evidence already. We have quite recently formed another little syndicate. The Labrador sailed on August 5, and we have chartered the light draft paddle steamers of the Russians to convey our goods on the river. I hope we may hear soon of complete success. I received on Saturday the following telegram from Consul Holmboe, at Vardoe, who has, doubtless, received intelligence from some returning walrus sloop: "Straits, Kara Sea, penetrable; Labrador probably Goltcheeka."

DESCRIPTION OF SIBERIA.

I will now give some brief account of the country itself. To say that Siberia contains $5\frac{1}{2}$ millions of square miles may convey no real impression to your minds. Look at any map. Then you will begin to take in its vast size. From the North down to about the Arctic circle we have the treeless Tundra, covered in winter with nearly 10ft. of snow, the ground in summer thawing but to the depth of 12in. Yet this region is carpeted in summer with numerous flowers. The natives roam it with their herds of reindeer, ever wandering in search of fresh moss. Next we come to the forest region, extending for hundreds, nay, thousands of miles. The trees met with are the larch, the cedar pine, the white birch, the lime tree, and mountain ash. The furs of Siberia are many of them more highly prized than those of North America. We have the white and brown bear, the white and blue fox, the wolverine, badger, polecat, sable, ermine, weasel, otter, beaver, grey squirrel and flying squirrel, the chinchilla. Do not imagine that the treeless Tundra or the wooded Taigar contain no hidden wealth. Gold, graphite, copper, coal, or at least a valuable lignite, are known to exist in many places accessible to our barges on the Yenisei, and exploration will doubtless reveal many deposits elsewhere. As the African ivory becomes more and more scarce, so will the fossil mammoth ivory of the north increase in value. But the real wealth and the more habitable and populated region begins with the northern limit of cultivation about the 60th parallel. No district in the world will beat in productiveness the upper watershed of the Obb and Irtysh. The steppes nourish enormous quantities of cattle, sheep, and horses. The main centres of the grain districts are at Barnaul and Semipalatinsk, on the confines of China, and the produce is conveyed in barges down the river to Tjumen, a far greater quantity than most people have any idea of finding its way to Europe, even to London. The chief grains are wheat, barley, oats, rye, buckwheat. Hemp, flax, and their seeds are exported in large quantities, likewise potatoes.

MINERAL WEALTH.

In the Newcastle Natural History Museum are 400 fine specimens of Siberian mineralogy, presented to the town by the late Emperor Nicholas. These come chiefly from the Urals, Ekaterineburg being the centre, the wealth of which I will not attempt to describe. The next important centre is Barnaul. Great quantities of silver and copper are here found and melted. 40,000lb. weight of silver annually is sent to Petersburg from Barnaul, from which 3 per cent of gold is extracted. The third centre is Nertchinsk, producing, besides gold, silver, iron, antimony, arsenic, tin, and lead. Precious stones abound throughout Siberia. Whilst these named centres are the chief, many other important mineral districts exist. On the Upper Yenisei are ironworks, the ore smelted by charcoal. These ought to be the main sources of supply, if properly worked, of Eastern Siberia. But they are in a most neglected state owing to want of capital. The manager of the Government Bank at Krasnoïarsk said to me, "If you English would only come out and work our minerals you would make more money than is made in gold mines. Local capital will only be put into gold works, hence our other minerals are quite neglected." When it is stated that Siberia produces one-tenth of the gold of the world, the purchasing power of the country can be imagined. Whereas many of the mines are Government property, many are private. The discoveries of Welsh gold are hampered by a tax of, I believe, 30 per cent. The Russian Government exacts only a tax of 3 per cent, but Government takes, and is responsible for the safe conduct of, all the gold produced, giving the mine proprietors fair credit for it. The standard work on Gold Mining, by Locke, gives many particulars of the Siberian production. He mentions particularly the miners of the Yeniseisk district as being the first in the country to improve the old methods of mining. But very much yet remains to be done before they can be said to work on most recent scientific methods.

Captain Wiggins and myself drove 100 miles to some of the Yeniseisk mines. We saw them in winter time, and therefore at a disadvantage, but there was abundant evidences of prosperity in the state of the works and dwellings. Never shall I forget the silent beauty of those drives, under the full moon, through forest cuttings so narrow that the wind found no entrance, and so the giant fir trees sustained a weight of snow that added an indescribable beauty to the scene. The stillness of the forest was unbroken save by the music of the bells. That we were upset ten times during the first night did not spoil the impression. I would undergo the mishaps again for the same treat. Nor shall I easily forget the hospitality afforded us in the midst of that primæval forest, or the kindness of the gentlemen summoned from the neighbouring mines to bid the foreigners welcome, and the attention shown us during our inspections by day and the merry hours with songs and games in the evenings. The record was stamped on my memory still deeper shortly after on hearing of the sudden death of our host, the manager, through illness intensified, if not actually brought on by his care of his guest. He had deprived himself, unknown to me, of his fur to supply the place of mine—the attendant had sent mine elsewhere—as we ascended from the warm shaft into a temperature of 30° below zero.

EUROPEAN LUXURY.

From the above remarks you may gather that the natural resources of the country are of great value. We should therefore expect the inhabitants, if they had in any measure made use of their advantages, to be living in comfort. To those whose idea of a Siberian dwelling is a hut I would recommend an inspection of my photographs in the room adjoining. Wooden houses there are, many preferring them to stone or brick. Church and schools costing from 20 to 50 thousand pounds are presented to

towns by merchants and miners who seek an outlet for their wealth. You may hardly credit my statement, but I will quote the words of a French writer (M. Meignan) : 'Lost in wonder at the palace of M. Kusnezow (Krasnoiarsk), as extensive as our grand Parisian mansions and almost as luxuriously appointed. There are several others almost as grand. The miners of Irkutsk are still more extravagant in their fancies, favoured by their wealth. The most prolific gold mine in all Siberia yields annually £1,200,000 ; it is the property of three proprietors only. The gold miners of Irkutsk, the tea merchants of Kiachta, to finish with these instances of the flaunting of stupendous riches—gratify their passion for exciting envy and wonder by considerable donations to the churches.' You may gather that such communities require supplies of various goods to no inconsiderable extent. The Government and bank buildings, shops, assembly-rooms, and theatres would bear comparison with those of our provincial towns. There is not only a demand for soft goods, but for machinery. The miners want heavy machinery by water, which they cannot get overland. The electric light would do there, because there is no gas to compete against it ; other illuminants are dear, and therefore, with cheap fuel and plenty of water power at hand, the electric light has a good field. Therefore, when such goods are carried by sea and no duty is exacted on them, we should be able to sell them, giving an advantage to the Siberian merchants and realising a handsome profit over the costs of the enterprise.

INLAND COMMUNICATION.

I will now describe the present means of communication by which merchandise is transported this immense distance. Goods from France, Germany, and England are sent to Moscow by the ordinary routes. Foreign and Russian goods, during the summer months, leaving Moscow, are conveyed by water to Perm, thence formerly by road, now by the recently-constructed railway over the Urals to Tjumen. Over 300,000 tons of merchandise are annually sent into Siberia by this route. At Tjumen they are again transferred to the river system. You will observe that, whilst the general flow of the Siberian rivers is northward, the branches trend east and west. Following the goods down the Tobol and Irtysh, they then join and ascend the Obb, and thus goods are carried to Tomsk by water. Thence they are sent eastward in summer over almost impassable wheel-roads ; in winter by the cheaper and easier sledge roads to Krasnoiarsk. This river route is the only summer one, and the lowest transit rate is £20 a ton from St. Petersburg to the Yenisei, but, as a rule, far higher rates are paid, and heavy goods, such as machinery and boilers, are conveyed with the greatest difficulty. In winter, the rivers being frozen, the only transit over this immense distance is by sledge, consequently the cost is enormously enhanced. The distance from Nishni Novgorod to Krasnoiarsk is 2,500 miles. On our way home by sledge on this route I calculated we met on an average 800—1,000 freight sledges a day in caravans of 100 to 200, half from the east laden with tea, half from the west with sheet iron, machinery, rails, and packages, the contents of which were not visible. The Government have just made a canal from a tributary of the Obb to the Yenisei, but I doubt if it is yet practicable, and, being made far too narrow, it is likely to prove a failure. From the Yenisei to Krasnoiarsk goods go eastward by road to Irkutsk and other towns. The wealthy Sibriakoff has acquired the monopoly of transit on the Angara, on condition of his making it navigable. There are rapids of about ten miles' current. He has laid down in them chain cables sent overland from Newcastle, and has built two powerful steamers with additional appliances for chain-hauling up the rapids. He has, besides, to spend a large amount in blasting rocks in the rapids. If he succeeds he will have executed a grand work, and one which will be most advantageous to us, opening up by water the Irkutsk district. We have valuable minerals

which this summer we had hoped to get floated down in barges from Irkutsk, but this was impracticable. There is a Government scheme for the construction of a railroad, which will probably be the longest in the world. I find the popular idea is that it will damage our sea trade. But I am looking forward to its construction with interest, as I anticipate great advantages from it. It is to start only from Tomsk, passing through Krasnoïarsk, Irkutsk, right away to Nicolaïvsk. The only loss to us will be the cheapening by £2—£3 a ton of the cost of transit from Tomsk to Krasnoïarsk, 370 miles, and so reducing the selling price of our English merchandise at Krasnoïarsk by this amount. But, on the other hand, it will open to us a better market in Tomsk for our goods sent up the Yenisei, and will enable us to tap a most valuable mineral and agricultural district. Then, again, by the cheapening of the cost of transit eastward of the Yenisei, it will improve the trade both outwards and homewards with this region. A still further work may be carried on up the immense but rapid tributaries of the main rivers by providing very fast light-draft steamers and launches. There are comparatively few roads in the country. The great main road east and west is the trunk artery, fed by the few minor roads that branch off, but all the rivers are highways, being available for steamers, and barges and boats towed up by convicts, horses, or dogs, also in winter forming splendid sledge-roads, which thus feed the main road. It is generally thought that it must be a terrible drawback for a country to be frozen up five months. But it is the winter that is looked forward to as the cheap and easy time for transport where there is no water communication. Every stream is then bridged, the muddy or baked lumpy road, over which wheeled traffic is conducted with great difficulty and fatigue to men and horses, is exchanged for a smooth and almost frictionless track, along which you may for the most part gallop in comfort, at least until much traffic has spoilt the road. Produce can be brought from the farms without fear of decomposition for many months. In such a vast country winter brings many blessings that we certainly cannot appreciate at a distance. So much for the means of communication.

ATTITUDE OF THE RUSSIANS.

Next as to the attitude of the people and of the Government towards us. On our arrival with the *Phoenix*, we telegraphed to the British ambassador at St. Petersburg, Sir Robert Morier, respectfully asking him to request the Government to grant us freedom from duty on our goods. The Czar was at Copenhagen. A messenger was despatched to him, and he personally signed the decree in our favour, and a fortnight after our arrival the goods were free to be sold. The governor of the province of Yeniseisk telegraphed congratulations upon our reopening to them the route they feared had been lost. The merchants, at first, were somewhat suspicious, fearing lest we had come, as others had before, to open up a competing retail trade in the country; but, after a time, on my assuring them our desire was only to do a wholesale trade with themselves, supplying them with goods cheaper than they were now getting them overland, they saw their own advantage, and confidence was restored. The miners and manufacturers gladly welcomed us, seeing the advantage they would gain, especially by getting improved and heavy machinery by water carriage. The richest gold miner there, who has led the way in the new quartz crushing, said to me, "What you want to make your scheme succeed is co-operation on our side, and I am ready to do what I can to assist you." The only people who are opposed to us are the overland carriers and some Russian manufacturers. But three-fourths of the press of the home country is in our favour, saying, "Is the interest of Siberia to be set aside for the benefit of a few Moscow merchants?" I myself believe our very opponents will rather gain than lose if we succeed in assisting in the developing of the country. As

to the Ministers, every assistance has been afforded us by them. They are naturally desirous of developing the latent wealth of this splendid country. They have shown us their goodwill by granting five years' freedom from duty on almost all sea-borne imports. For years they have desired to see this route developed. Pessimists shake their heads and say, "That is all very well, but what about the end of this period?" My strong belief is that it will be our own fault if these privileges are not then extended. If we only do harm to Russian commerce during this period, then we cannot expect or deserve further concessions. But if we can show that the people of Siberia are really to be benefited, and the country is better developed by having access by water to European markets, then I fully believe the Government will continue the privileges now granted. The Russian Ministers are doing everywhere what they consider to be best for the development of Russian trade, and we must applaud their patriotic motives, even if we do not entirely believe that their methods are the best calculated to advance the general prosperity of the people. They are assisting their people in developing a trade with the East, as we heard from Mr. Curzon. Instead of crying out against a Government for doing their duty, let us do ours. Let our Government do as much as they can, consistently with our economical principles, and let our manufacturers and merchants do their part, and we shall succeed ultimately in every instance except where natural advantages of production and transport are on the side of other nations. My business travels in Europe, as well as in Siberia, have convinced me that English manufacturers and merchants are to blame for much of the difficulty of competing with those of other nations. But I cannot here take up this wide question.

Names and Heights of Summits in the Owen Stanley Range.—The following are some of the principal heights observed by Sir. W. Macgregor's party:—

	Feet.		Feet.
Mount Victoria	13,121	Mount Griffith	11,000
„ Albert Edward	12,500	„ Gillies	8,000
„ Scratchley	12,000	„ Parkes	8,000
„ Knutsford	11,157	„ Musgrave	9,100
„ Douglas	11,796	„ Belford	6,000
„ Service } ... between {	10,000	„ Henry Forbes.....(?)	3,000
„ McIlwraith } and {	11,000	„ Frank Lawes	(?) 3,000
„ Morehead }			

—*Proceedings Royal Geographical Society.*

German New Guinea.—In the course of a short excursion from Finsch Haven, Dr. Hellwig, the botanist, made in January last an ascent of the Saddle Mountain (3,182 feet), which is situated about $5\frac{1}{2}$ miles from the coast. The whole mountain is very rugged and densely wooded.—Baron von Schleinitz has prepared on a large scale a map of the coast of Kaiser Wilhelm's Land from Cape Cretin to the Legoarant Islands, near Hatzfeldt Harbour, embodying the results of recent surveys and observations.—*Proceedings Royal Geographical Society.*

Two of W. & A. K. Johnston's Recent Maps.—The "*Modern*" *Map of England*: This map is on a scale of seven miles to the inch, and shows all the towns and most of the villages, estates, and antiquities. Railways (with stations marked), roads, and canals are also distinctly shown. The map is therefore well adapted for library and office use, and should also be invaluable to the tourist, pedestrian, or the cyclist. The complete map, in four sheets, coloured, size 35 by 29½ inches each, 3s. 6d. per sheet, on cloth to fold and in cloth case. This is a useful map, and will commend itself to those who require a map on the road or for office reference. It is clearly printed and coloured.—*Library Map of Asia* ("*Modern*" *Series of Library Maps*): Size 52 by 43 inches. Price, in four sheets, coloured, 15s. This new map of Asia is a beautiful map, pleasant to see and handy for use. Members will have pleasure in examining it at the library, and it will be found very useful in following the new Asiatic developments. The mountains and rivers are fairly shown and it is a creditable specimen of English cartography.

IN TROPICAL AFRICA.

[Read to the Members in the Library, December 15th, 1889.]

A CORRESPONDENT, writing from the King's Kraal, Matabeleland, South Africa, on August 25th says: It is a hot Sunday afternoon, and somehow or other my thoughts always turn more particularly to England and my friends on Sunday afternoons; but what a contrast in my surroundings here to the cool luxury and delightful accompaniments of English summer days. I am nearly 1,000 miles from the last outpost of civilisation, in tropical Africa, surrounded by savages in the heart of Matabeleland, amidst a tribe of bloodthirsty warriors, who hate the very name of white man, and who live by raiding their more peaceful neighbours. If our friends in England only knew what a boon their letters are to us they would be more generous in writing. Our post is primitive. Letters are carried by native runners, who do their thirty to forty miles a day, whilst the ox-wagons which larger expeditions have to use for the journey can only average fifteen to twenty, forcing their way through thick bushveldt, sinking up to their axles in the deep sand-beds of dried-up watercourses or impeded by huge boulders. Add to this the numerous delays caused by break-downs, straying trek oxen, prolonged halts at water-pits to enable them to recover from forced journeys through the "Great Thirst Land," and you can easily realise how it is that travelling in the interior of Africa is such a long affair. To complete the picture you must know that it is impossible to move during the heat of the day, and that our difficulties are increased tenfold on moonless nights. We were lucky enough to pass through the "lion country" in northern Bechuanaland without any mishap to man or beast, but several of our cattle took their last drink in the Crocodile River, which, as its name implies, is infested with these reptiles. "Que diable allait-il faire dans cette galère?" you will say perhaps; and, indeed, I sometimes feel inclined to ask myself the same question. I have joined the expedition, which is headed by an old friend of mine, E. A. Maund, and was originally formed a year ago to take a message to our Queen from King Lo Bengulo, the most powerful native ruler in Africa. With it the king sent two of his trusted Indunas—Umsheti and Babaiaan—his object being to convince himself that "a great white Queen" really existed, and that we Englishmen had a big kraal of our own somewhere across the "big river," and were not simply a tribe of adventurous wandering spirits. The Indunas, as, of course, you know, were well received in England, and the Queen returned a gracious message. It was accompanied by a beautifully-framed portrait of her Majesty, and a big gold necklace with the inscription, "From Queen Victoria to Lo Bengulo," and numerous presents from Lord Knutsford and others. Several reasons prompted me to join this expedition on the return journey. One great incentive was the promise of grand sport—I have not been disappointed. Along the Marico and Crocodile rivers and their tributaries are gathered together at this dry season of the year all the game which would otherwise be spread over a vast region. Many kinds of wild buck, one more beautiful than the other, and quantities of guinea-fowl, paauw (a kind of wild turkey), pheasants, and partridges fell to our guns. Quagga, giraffe, and lion, although seen by us, we had no time to hunt. The old Indunas, being in a desperate hurry to reach their own country, would have resented the delay caused by an organised hunt; and, besides, we were confined to the immediate neighbourhood of

the out-span camps by the numerous and harrassing duties connected with the supervision of a large expedition consisting of five heavily-laden ox-wagons, each with a span of eighteen oxen, fifteen horses, spare oxen and sheep for food, and thirty natives belonging to different tribes. The old chiefs know nothing about trekking, and on several occasions became so impatient that they started off on foot ahead of the wagons. One day they had to walk thirty-seven miles before reaching water, and then had to wait two days on scant rations before we came up with them. One of these men is seventy-five years old, but the tough old Zulu (the Matabele rulers are of Zulu origin) was none the worse for the escapade. On another occasion, in spite of our warnings, they left us, armed only with assegais, in the worst part of the lion country. When we followed a few hours afterwards we saw to our horror that their footprints had been partially obliterated by the spoor of a lion. Fortunately, however, he had followed them only for some hundred yards, and then, probably not being hungry, had wandered off towards a pool of water. Such vagaries were to us a source of constant anxiety, for how could we face the king without bringing back his Indunas? Our own lives would not have been safe. We should have been proclaimed as impostors or accused of witchcraft. However, we managed to divert their minds and keep them employed at the wagons by shooting twenty-six grey monkeys for them. The skins of this particular species are only worn by Royalty or big chiefs. From that time until our arrival at the king's kraal they spent every spare moment in working at these skins, such simple children of Nature are they.

At the Matabele frontier, 150 miles from here, permission was obtained for the four white men of the party to enter the country, and a messenger was despatched to the king informing him of our safe arrival. Before reaching the king's kraal we were, however, halted at one of his regimental kraals, containing his bodyguard, the "Umbesu," a thousand strong—a wild, unruly lot of young fellows, wearing a sort of Highland bonnet of ostrich feathers, leopard-skin girdles, and fantastic anklets and bangles. It was the king's pleasure that his head witch-doctor should sprinkle us with a certain concoction, in order to invest our mission with importance in the eyes of his people, before we were admitted to the royal presence. It was the first time that this ceremony had been performed on white men, and we valued the compliment accordingly. At last, after having been three months on the trek from Kimberley, and two months from Mafeking—the last frontier police outpost in Bechuanaland—we find ourselves amongst this strange, warlike, semi-hostile people, in an uncultivated country bigger than England, everywhere overgrown with beautiful tropical vegetation, and containing about 300,000 inhabitants, 30,000 of whom are soldiers. Scattered amongst them dwell about fifty white men only, carrying their lives in their hands, for there is no telling when the moment may come when the wise old king will no longer be able to restrain his young soldiers, who are not allowed to buy wives until they have blooded their assegais. To take a white man's life counts as a deed of great valour; but we have lively hopes of the effect which will by degrees be produced by our mission. Umsheti's and Babaiaan's tales of the big kraal whence come all white men will be spread from mouth to mouth throughout the land. Of the discipline of our soldiers, the power of our monster guns, the electric light, and the abundance of good things everywhere displayed they never tire of speaking with bated breath and suitable gestures. Our wagons are besieged from sunrise to sundown by queens, chiefs, warriors, and slaves, all begging for "toussa,"—gifts—and none are sent away empty-handed. A blanket, a knife, a bit of calico, or a few beads delight their hearts, and they realise, let us hope, that with our extinction these good things would cease. The sick and the maimed are doctored and bandaged, and thus the thin end of the wedge of friendship is inserted, and when they have grown more

used to our presence the fear and hatred of the mass of the people may disappear. Our so-called civilisation is, I fear, inexorable. Gold is known to exist in this country, and where gold is the white man will come eventually. I must confess to a feeling of deep regret that this light-hearted unsophisticated people must, under the pressure of the advancing tide of the European race, either fall back or disappear. They have no cares beyond the moment—death has no terrors for them. They are comely, in youth sometimes even beautiful—of a colour like old bronze—never black like the negro. They need never want for food, and the skins of wild animals provide all the clothing which is necessary in this climate. What adequate benefits can we give them in return for all this? Lo Bengulo was much struck by the portrait of our Queen in levee dress. "I can see in her face," he said, "that she is the Great White Queen." When her message thanking him for his kindness to her countrymen was read out, the thirty-seven Indunas present in council murmured long "koomalos," or royal greetings, and thanked their king for his wisdom in sending his own "eyes and ears"—Umsheti and Babaian—to receive her words. The colours of an English boat club now adorn the head of one of the king's eighty wives. I was wearing them round my throat when the "Icosicass," who had never seen anything quite like them before, begged me to give her a bit. I am therefore without my necktie, but have gained, I hope, a friend, and in any case have transferred a badge of English athletics to a very exalted position.—*Daily Telegraph*.

Atlas of England and Wales, 57 maps and a good index. W. & A. K. Johnston, London.—A new atlas, arranged in counties alphabetically, the maps carefully drawn and clear, railway lines and canals shown—an interesting contribution to local geography, and very useful for reference.

Atlas of Commercial Geography. By J. G. Bartholomew, F.R.G.S., with Notes by Dr. H. R. Mill. The University Press, Cambridge. Price 3s., 46 maps, coloured.—This atlas is intended to accompany Dr. Mill's "Handbook on Commercial Geography." It is an extraordinary production. No school or teacher can afford to be without it, and the price it is issued at by the University Press is so small that there can be no excuse for using anything of a less perfect kind. We welcome this atlas and others as evidence that a great awakening is taking place in reference to the quality of teachers' tools in this country.

Discovery of Relics of Captain Cook.—On pulling down a part of Sir Joseph Banks's Museum at the back of 22, Soho Square, London, in a recess with doors that had not been opened for half a century, a very interesting collection of relics of Captain Cook's voyages in the South Seas was discovered. Inside the panelling the following inscription was found in the handwriting of Sir Joseph Banks, who accompanied Captain Cook in his travels: "Instruments used, carvings, weapons, and heads collected by Captain Cook during the voyage of the Endeavour.—J. Banks." These relics have been bought by Sir Saul Samuel, the Agent-General for New South Wales, and will shortly be despatched by him to Sydney for the State House Museum at that place. Among the collection are the following interesting articles: Old quadrants and other instruments used by Captain Cook on board the Endeavour, four of which are in oak cases; two mummied tattooed heads of New Zealand chiefs; two native models of New Zealand canoes, one carved; two large carved canoe paddles, carved spears and war clubs, a native chief's paddle, beautifully worked with idolatrous carving; a very fine stone hatchet with handle, and upon it the following inscription, in the handwriting of Sir Joseph Banks: "Brought to England in 1775 by Captain Cook from Otaihaite;" and a wooden bowl, with lip, used for handing round human blood in the days of cannibalism. There is also a carved wooden sceptre, with the following words scratched on it, presumably by Captain Cook: "Made for me by Wanga.—J. C." The genuineness of these articles seems to be proved by the fact that Sir Joseph Banks's handwriting can be identified.—*Newcastle Chronicle*.

A SPRING RIDE IN SOUTHERN SPAIN.

[Read to the Members of the Society, in the Library, December 15th, 1889.]

It was during the most wretched weather in London in February last that circumstances caused me to take ship for Gibraltar. I had, when quartered on the Rock some years previously, made many expeditions into Spain, either for shooting purposes or in the pursuit of ornithological research, and had always retained a vivid recollection of the long rides through that splendid wild country which were a necessary part of these trips. I now found myself, by a sudden turn of luck, in a position to gratify my desire to revisit the scenes of my early expeditions.

Most things in this world are, no doubt, gauged by contrast, and nothing could afford a more telling example of this than my sensations at finding myself, after four days' voyage, on my arrival at Gibraltar in the middle of an English summer, and at the same time calling to mind the horrors of snow, slush, and damp cold I had so recently left behind me in London.

As is generally the case, I found I had so much to do in the few days available at Gibraltar that it was a matter of no small difficulty to plan out what to do and what to leave undone until that indefinite "next time" should come to pass. One thing I was determined upon, at all events, and that was to ride through a certain mountain pass which led to the part of the country where I had passed many happy days shooting and ornithologising, and which had always been preserved in my memory as one of the things to do again. Accordingly, having made the necessary arrangements, and found a couple of congenial spirits, who, although they might not share in my especial occupations, were at all events ready for an outing, and did not object to hard work, we rode out from the old Rock soon after morning "gun-fire" on March 6.

The weather in the spring at Gibraltar is proverbially uncertain; heavy rain-storms, lasting for several days at a time, are by no means uncommon, whilst, on the other hand, there are often weeks together of the most glorious weather. On the occasion of our start we were favoured by a splendid day. Those who have visited Spain will understand what this means, as it is useless for me to attempt to describe the beauties of an early spring morning in that country.

We had sent on our baggage on pack animals on the previous day, with instructions to our *arriero*, or man in charge of the horses, to stop at a small venta about twenty miles out for the night, and to continue the journey early on the following day, our intention being to cover the whole distance of some forty to forty-five miles in one morning, and to have a look round the place the same afternoon. The pack-horses carried our guns, ammunition, blankets, and a week's supply of provisions; in consequence we ourselves travelled light, with only our waterproofs strapped on our saddles, and the day's rations for man and horse in our saddle bags.

Once through the gates of the fortress, we cantered across the neutral ground to the Spanish lines, and followed the shore for five miles up the river Guadarranque. This we crossed by the well-known ferry, and, pushing across the low hills beyond, traversed the Palmones Plain, through which flows the river of that name, reaching the town of Los Barrios at 8 a.m., twelve miles from the Rock. Here we came upon a metalled road, a rare article in this corner of Andalucia, which we followed for about a mile, and then struck off to the left into the Palmones valley again. This

road was originally destined to run between Los Barrios and Casas Viejas, but at present ends incontinently in the mountains, and hence is of little use to anybody. After crossing some deep clayey hills, covered with palmetto where not cultivated, we once again came on the Palmones river, and forded it.

Rivers are a great trouble at times when travelling in Spain; a heavy storm of rain makes them impassable, and often, after the floods have subsided, treacherous quicksands are formed, which are most unpleasant to traverse. On topping the ridge of hills beyond the river, we found ourselves about to enter the Pass of Ojen. It was now 8-30, and we had covered some fifteen miles from the Rock. Up till now our progress had been fairly rapid, but we were about to encounter more difficult ground, and, what was more interesting, traverse a most picturesque part of the country. A deep watercourse, or *garganta*, runs down through this pass, joining the Palmones river some five miles beyond Los Barrios, and our route now led us down a steep hillside towards this stream, which, were it in England, would be the beau ideal of a trout brook, brawling as it does over boulders, and with quick runs into pools deep enough to hold many a good salmon. The bridle road, or rather track, wound down amongst a thick growth of dark green lentiscus bushes, intermixed with white heath in bloom, and great masses of golden genista, which gave great brilliancy to the scene. Arrived at the bottom, we skirted the stream, whose course was divided in all directions by a dense growth of oleander not yet in blossom. A month later the channel of this stream, as of all those of Southern Spain, is marked by a broad crimson line, formed of the beautiful flowers of this shrub. In a sheltered spot in the valley we came to an old flour-mill, whose site had no doubt been chosen on account of the fact that the stream is a perennial one. All the same, to English notions it was most inconveniently situated, as access to it was most difficult—a matter, however, of sublime indifference to a Spaniard, who always appears to have plenty of time to surmount any difficulties, more especially as he always can, and generally does, defer any troublesome job until *mañana*, or to-morrow.

Around the mill were many dark-foliaged orange trees, at this time laden with golden fruit, also lemon trees equally well garnished. A little way beyond the mill the track led to a ford across the Garganta, through a deep stony gully. The stream itself was, at this point and beyond, fringed with alder trees, which had been most roughly treated by the "freshets," the inevitable accompaniment of each storm of rain in the mountains. As our horses stumbled across the ford amongst the masses of rock and stone, and between the islets of oleander, we remarked that some 10ft. above the present level of the water, which barely reached our horses' girths, great masses of *débris* were jammed into the branches of the alder and other trees, marking the height to which some recent floods had attained. The woods bordering the stream were alive with birds, and the whole place resounded with their song. The well-known call of the English chiff-chaff, at this time on his journey to England and the north from his winter residence in Central Africa, was heard on all sides. Swallows hawked insects in the brilliant sunshine, and many butterflies flitted about over the gorgeous flowers, and all this less than a thousand miles or so from England, fated to be still enveloped in fogs and snow.

The track now skirted the stream on the far side along grass patches, and through scrub which grew higher and denser as we proceeded. At one point a huge mass of rock some 30ft. square had toppled down from the heights above, and blocked up the course of the stream, which had, as it were in revenge, cut out a splendid deep pool for itself, out of which it swept with great swiftness round the corner of the rock. A more perfect place for a fish could not be imagined, and no man with the soul of a fisherman could pass it without wondering whether he could not get a rise out of its

mysterious depths. One of my companions had, indeed, made an expedition to this point in the preceeding summer, upon which occasion he had seen a fish of nearly a pound weight, which was certainly not one of the usual denizens of the Andalusian streams—to wit, the barbel.

In a gully some few hundred yards beyond the ford another old mill was situated, shaded by two huge weeping willows, the only ones in this part of the country. The Pass of Ojen runs in a S.W. direction for about ten miles to a point where the venta of that name is situated; it then bifurcates, one valley trending towards Algeciras, and the other or main branch leading in a W. direction towards the great plain of La Janda. The track leads along the northern spurs of the pass, at times ascending some hundreds of feet, and at others descending close to the torrent below. Either side of the valley is bounded by steep sandstone and limestone crags, the summits of the hills being formed of white serrated rocks, which at many places are inaccessible. Innumerable spurs run down from these great walls of rock, separated from one another by deep gullies through which flow sparkling streams. These gullies are the result of ages of denudation, and are some of them of considerable depth, and all bear evidence, in the wild confusion of water-worn rocks and boulders, of the force and effect of the torrents to which they owe their origin. Generally speaking, the track over the spurs was on hard, sandy ground, cut by the feet of pack animals into narrow and deep channels. In the hollows the soil was clayey or of black loam, and at places up to one's horse's hocks in mud.

As we entered deeper into the pass, the hillsides became dotted with the cork and olive trees, and the scrub grew more and more luxuriant. The white heath, which had at first been only 2ft. or 3ft. high, now appeared in fine masses 7ft. and 8ft. in height, individual specimens reaching to more than double this. The yellow genista or prickly broom, and still more brilliant common broom, stood over 10ft. The scrub of lentiscus was also intermingled with the beautiful gum cistus, now in blossom with its delicately coloured pink or white flowers, much like an English dog rose. Wild lavender and mint grew in profusion wherever the soil was light and sandy, and a host of other flowering plants, which to my great regret I had not knowledge enough to name, made up a picture which could not but strike even the most indifferent spectator with admiration. Birds were less plentiful than in the jungle-like growth near the main stream. The inevitable little stonechat, a well-known resident, appeared on the top spray of bush after bush as we rode through the scrub; and as we crossed the bright red patches of sandstone on the higher spurs, the crested larks fluttered ahead of us with their soft whistle. This little bird is called by the Spaniards "*carretara*" or the "*road-man*," from its peculiar habit of frequenting roads. The French, for a similar reason, have dubbed it "*l'allouette des grands chemins*." Higher up the hill-sides in the water courses we came upon great masses of rhododendron, the brilliant flowers of which were just breaking out.

About ten o'clock we entered a wood composed chiefly of Spanish oak, cork, and wild olive trees. No doubt in former times this forest growth covered the whole country side, but the improvident Spaniard, who takes no thought of the morrow, although he invariably puts off any work until that day, is steadily destroying the timber for charcoal. This part of the route was in its way even more beautiful than the hill sides we had traversed. The oak trees, with wide-spreading branches, shadowed the track, which wound amongst grey boulders mottled with vividly coloured lichens. The trunks of the oaks were festooned with the hare's-foot fern, which appeared vividly green against the dark stems, and which latter in their turn formed a striking contrast to the rich russet and deep red tints of the cork trees, which had without exception been stripped of their bark—a valuable marketable commodity to

the Spaniard. Splendid trees of *laurustinus*, now one mass of white flowers, were to be seen at intervals through the wood, whilst a species of creeper, with a thorny stem and leaves like an ivy, hung in festoons from one tree to another, making up a picture of nature run wild most difficult to describe. The flower of this *laurustinus* is pure white, and not unlike the guelder rose at a distance. The wood was alive with birds, the English blackbird and chaffinch perhaps asserting themselves beyond the rest. Titmice, both great, blue, and crested, flew from tree to tree, and kept up their merry if somewhat monotonous calls, whilst the small serin finch, the wild canary of the country, was to be heard trilling on all sides. Half an hour later we reached the open ground near to the Venta Ojen; this is the only house on the road through the pass, and, like most solitary houses in Spain, is built for defence and strongly walled, with an inside patio for the safe-guarding of the pack animals of travellers. Near to this spot there is an ancient Moorish burial ground. The remains of an old paved Moorish road appeared and disappeared at intervals during our ride through the pass. As has been already stated, the valley at this point bifurcates, and there is a considerable stretch of undulating ground, cultivated at places. Beyond this the hillsides were clothed with dark-foliaged cork and olive trees, dotted in places with ash trees, in their brilliant green dress of early spring.

Once again skirting the torrent, which flowed as before through a wilderness of oleander, cane brake, reeds, and alder trees, we continued our way over a series of spurs scattered with cork trees. Here there was less scrub, and, in consequence, the bracken was more plentiful. The ground was covered with the russet remains of last year's giants, for the bracken, like the heather and genista, grows on a grand scale in these parts. The young plants of the year were hardly more than a foot in height as yet.

Shortly after eleven o'clock, as we topped a rocky spur, the great plain and the waters of the Laguna de la Janda, sparkling in the sun some twelve miles distant, came into view. No words of mine can describe the fascination which this first sight of the plain has to a sportsman or naturalist who has once visited it. Possibly it is because, after an undoubtedly arduous expedition, the "land of promise" is at last in sight. We were still at a considerable height above the open country beyond the pass, and which in consequence looked a great deal nearer than it actually was.

Immediately to our front, and barring, as it were, the entrance to the pass, was a wooded conical hill, surmounted by an old Moorish fort, made, no doubt, to command this road to Gibraltar. Beyond this the hills fell away to the northward and eastward, disclosing the wonderful vega. This latter is bounded on the west side by a series of rocky and wooded hills, known as the Sierra de Retin, on a ridge beyond which the white walls of the old Moorish town of Vejer de la Frontera show out clearly, although twenty-four miles distant. The great vega, or plain, some ten miles wide by twenty miles long, lies below. In summer this is a stretch of grass land covered with cattle, and with a few lagunas or swamps in its lower portions. In winter it forms a vast inland sea, and is the haunt of innumerable wild fowl. Beyond the town of Vejer, again, lie some sandy hills, the famous heights of Barrosa, whence the French, under Marshal Victor, were so unceremoniously ousted by Graham's British troops, in spite of the incompetence, if not treachery, of their apathetic ally, La Peña. In this battle, which Wellington characterised as one of the hardest-fought actions of the Peninsular War, no less than fifty British officers and close upon two hundred men were killed and wounded, and the 87th Regiment captured a French eagle.

We now descended a series of clay hills under cultivation, most execrable of roads, rendered more than usually trying for the horses by reason of the large boulders half

buried in the mud, over which they slipped and staggered. The birds evidently voted this region an unprofitable one, and none were to be seen except a few peewits. To our left the heights rose steeply, at one point forming a steep cliff, over which a few vultures sailed with motionless, outspread wings.

At noon we had reached the exit of the pass, and halted at the small "venta," which lay at the foot of the conical hill already mentioned, known as Sobalbarro. In the barn where we fed our horses the swallows were already nesting. It was ten years since I had visited this spot, and I was not a little surprised to see that on the western side a fine house had been built, which one of my companions, who had more recent knowledge of these parts than I, explained to me was the *cazenà*, or shooting box of a Spanish marquis, the local grandee.

Our course was now nearly all plain sailing, for it lay over the gentle undulations of ground, skirting along the east side of the Vega. Now and again we had to ford a stream running in a wide sandy bed, with vertical earth banks, cut sharp and clear by the torrents which sweep down from the mountains. Except where we had to cross cultivated ground, the going was most excellent, and our little Spanish and Barb horses went away at a hand canter, as if they had only just come out of their stables.

Away we went over the grass land, through miles of asphodels, many of which were up to our horses' withers. These flowers are well-known all over the Mediterranean, but are perhaps nowhere seen to greater advantage than on the vegas of Spain and Morocco. Amongst the asphodels were many broad-leaved plants like giant lillies of the valley, a species of squill.

On the low cultivated hills are dotted here and there large cortijos, or farmhouses. Some of these are built on a very big scale, for the reason that in olden days it was found desirable for the inhabitants engaged in agricultural pursuits to live together for purposes of defence against the brigands or marauders from the mountains. Also the number of oxen, &c., employed for tillage purposes is very large, as many as thirty teams, with their ancient patterns of wooden plough, being constantly seen working at one time.

The wonderful richness of the alluvial soil of the Spanish vega is shown by the crops of wheat, barley, and beans which are raised by the primitive system of cultivation employed, the ground being merely "scratched," to use a very old simile.

At the time of our journey the young wheat was from 6in. to a foot in height; large gangs of labourers, men and women, were to be seen working in strings of twenty in a line, hoeing the weeds and breaking the surface of the ground sodden by the heavy rains of the winter. Now and again we espied several pairs of cranes stalking about in the cornfields. These big birds nest in the high rushes in the marshes, and are resident throughout the year in these parts, but their numbers are largely increased in the spring by the migratory birds, which, coming in from the south, appear to find excellent quarters for a time amongst the muddy flats left by the receding waters of the laguna. Later on we are abreast of a grand cliff known as the Laja del Aciscar, a well-known breeding station of the Spanish griffon vulture. These huge birds build equally huge nests in the caverns and fissures on the great sandstone cliffs, and eleven years ago, in 1878, I paid them a visit, and had a most interesting climb over the face of the great precipice with very satisfactory results in zoological line, so far as my own feelings were concerned. The view from the summit of this cliff, some 400ft. above the plain below, is perhaps one of the most striking in this part of the country; enormous herds of cattle, mares, and droves of pigs were dotted all over the grass land. As we passed through a cork grove which ran out down one of the valleys from the sierra behind, we saw several bulls, but none of them "toros bravos," as those bred and appropriated for the bull ring are commonly desig-

nated. This question of bulls is one of the bugbears of this part of the country, and, unlike many bugbears, is no question of fancy or imagination, but at times a very serious fact, which has to be faced and discounted for previous to making any arrangements for sporting in the vicinity. There are very few men who have travelled much in this district who have not had some unpleasant experiences of these savage brutes.

The Spaniards, who breed the best fighting bulls, are exceedingly particular about their animals, and, with a view to preserving them in a fit state of bad temper—so that upon their appearance in the arena they are bound to “go for” anything, horse or man—endeavour to keep them away from all intruders as long as they are in the semi-wild state in which they pass the first six years of their existence. It is a well understood law of the land that should anybody kill a bull, even in self-defence, when off the main roads or tracks, he must pay heavy damages amounting to from £60 to £100. Since all an Englishman's sport is sought for and obtained in the wildest parts of this country, an interview with a bull is by no means a rare occurrence. The best breed, the celebrated *Toros de Varela*, so celebrated in the bull rings, are herded in a district north of the vega, and the drivers or herdsmen are well mounted men, dressed in the well-known picturesque garb of the picador, less the silver lace and tinsel. These men are to be daily seen driving cattle, with their long lances resting across their saddle bows.

The inhabitants of these districts appear to know intuitively whether a bull is a “bravo” or fighting bull, or the reverse; and I have frequently—on the strength of an assurance that the bull in question was not “malo”—gone into a marsh after the coveted snipe, or later in the season after some especially-desired bird's nest. On other occasions, the disagreeable fact of finding one's favourite place in possession of a truculent-looking bull has caused me to adopt the safer method of leaving him as sole occupant.

Some twelve miles of undulating ground brought us to a depression running up from the laguna, which in the winter months is generally under water. Descending into this, we plashed slowly across it, through deep soft mud, and eventually reached the rising ground beyond. We were now within a mile of our destination, and accordingly turned off to a spring by the way, to water our horses before coming in. This spring, which bore the high-sounding name of the *Fuente de la Cara del Sol* (since it faces the south, like many others in this country), is a relic of the Moorish occupation of Spain. The water is conducted from its source in the hillside by a bricked aqueduct into a large masonry trough some 20ft. long by 4ft. wide; the overflow of this fills a similar trough below the first one, and so on again and again. Most of these sources (or “fuentes” as the Spaniards call them) consist of three or four such troughs, and are in consequence capable of watering a large number of thirsty animals at a time.

We walked our horses on to a halting-lace, having been just eight hours on the road, and soon settled them in their quarters, none the worse for their forced march.

The cortijo where we took up our quarters for the night was a good specimen of the class of building affected by the Spaniards engaged in raising and guarding the herds in this essentially pastoral country. Owing to the long duration of the winter floods, it is not possible to cultivate many thousands of acres at all in these parts; hence such portions are exclusively used for grazing, and, under the rays of the warm sun, no sooner do the waters recede than the most luxuriant grass-crops grow as by magic on the moist land.

The site of this cortijo, on a most commanding spur of some high table-land, surrounded on three sides by the great vega, had undoubtedly been first chosen by the Moors, who seem to have had an excellent eye for taking every advantage of the

conformation of ground. Close outside the cortijo some Moorish remains evidenced that this had been one of their fortified posts; whilst below the house two fine wells, similar to the one already described, proved that in the selection of their posts they had due regard to the advantages of a good water supply. The cortijo consisted of a large quadrangle with buildings around it, one story in height, and with huge buttresses outside; whether for strength, or the remains of a higher building, I cannot say.

The single entrance through an arched gateway was flanked by a loopholed wall, whilst all the older portions of the house had no windows opening outwards, all of them looking into the patio, or courtyard. In the newer part, a few small windows, strongly barred, enabled a view of the country outside to be obtained.

Perhaps, however, the most interesting feature of the whole place was the courtyard, which was divided into two portions by means of a high stone wall and the existence of some half-dozen curved shelter walls, built close to the main walls. These were for the purpose of places of refuge from bulls when the latter had been driven into the cortijo previous to being escorted by bullocks and guarded by picadors to the scene of their slaughter in the arena. A large stone circular corral or pen at one angle of the building, with a gate opening into the country, served as a sort of ante-room for the bulls previous to being separated or transferred to the inner inclosures.

People who have not travelled in these wilds of southern Spain can have but little conception of what a business the bull fighting is, and how it affects in many ways the whole lives of the simple people who live in the districts where fighting bulls are bred and preserved. Bull fighting is the one topic which will rouse the most lethargic Spaniard into the highest state of excitement, and I have found myself an object of the greatest interest, and I believe veneration, upon being able to give them an account of some recent great festa at Cadiz or elsewhere, where some favourite espada had performed some prodigies of bull-fighting courage. Cruel as the sport most undoubtedly is, ever since I have seen so much of these fighting bulls in their wilds, and learnt to hold them in such genuine respect, I must confess that a bull-fight has to me a degree of fascination which it is impossible to describe. Setting aside the horrid brutality to the horses in the bull ring, the rest of the spectacle, when there are good bulls, is one of the finest displays of pluck imaginable, and I often think I would like to place some of the men who sneer at the danger of bull fighting within one mile (not nearer) of one of the "toros bravos" on the plain of La Janda and study his actions. But to return to the cortijo. One side of the square was devoted to stabling horses, another was a granary, while the rest formed dwelling-houses, fowl-houses, &c., all mixed up together, and well tenanted by fleas. Of a night-time a number of cattle were driven into the yard for the sake of protection, and after dark it was no pleasant job to thread one's way through the great horned beasts as they started up and blundered off from the stranger, whose presence they seemed to readily detect.

The weather on this expedition turned out most exceptionally bad, as it so frequently does in the spring months in Spain. The wind veered to the south—a bad quarter for rain, and known as the "viente del moro" by the Spaniards—and the rain came down for a couple of days and a night in a manner that must be seen to be believed. The last day of our return journey was performed in a perfect hurricane of rain, which at times rendered it impossible to see for more than a few hundred yards, and turned every brook and rivulet in the pass into a raging torrent.

Arrived at the Venta Ojen, some arrieros, or muleteers, declared we could not possibly get on; but, as our presence was required at Gibraltar, we pushed ahead, and succeeded in fording all the smaller gullies without any mishap. As we traversed

the pass we could hear the roar of the waters in the garganta at the foot of the hill, and, when we eventually neared it, found it was a roaring cascade, some thirty yards wide, and fifteen feet or more in depth. The alder trees were all swaying in the furious current, and the oleanders under water, whilst uprooted trees and *débris* came surging past every moment. By means of making a long detour, we succeeded in crossing the river Palmones by a bridge above the point where the garganta joins it, and thus secured our retreat. This bridge is a new addition, and in the old times, before its construction, when I first visited Spain, the pass of Ojen was liable to be closed for days at a time in the heavy rains.

Despite a most uncommonly severe wetting, and nine hours in the saddle in addition, the memory of the ride out through that splendid wild country will last a long time; and I only trust that some day I may have the good fortune to find myself once again working my way on a good horse through the pass of Ojen.—V.

Tyneside Geographical Society's Local Excursion.—The second excursion of the Tyneside Geographical Society took place on Monday, August 5th, when the members were invited by Mr. Albert Grey, vice-president of the society, to visit the ancient ruins of Dunstanborough and the interesting country surrounding the Howick domain. Rain fell heavily at intervals, and the outlook as train time approached was so ominous that over one-third of the party decided not to venture. About fifty, however, including eight ladies, determined to defy the elements, and these proceeded by the 8-20 train to Longhoughton and Little Mill. Arrived at the former station, fourteen hardy Northumbrians left the train, and were driven to Boulmer, where they embarked in large fishing cobs for Dunstanborough Rocks. Meanwhile, the rest of the party proceeded to Little Mill, where they were met and welcomed by Mr. Albert Grey, who had brakes in readiness to convey them to Dunstanborough. Through the mist could be descried the sails of the cobs, which, favoured by an increasing breeze, the last hope of finer weather later on, came along the coast at a fine rate. The party explored the various points of interest, including the well-known Rumble Churn, so graphically described by Lewis in the celebrated ballad, "Sir Guy the Seeker." During the prevalence of north-east gales the waves rush up this abyss, the water is lifted many feet above the common level, rising towards the walls of the towers as if they would surmount the cliff and deluge the plain. The breaking of the waves in foam over the extreme point of the rocks, the heavy spray, the noise of the disturbed waters, and the groans which re-echo through the desolate towers on such occasions, are both grand and awful. Mackenzie, Hodgson, and other local writers suppose that the castle was first a British stronghold and afterwards a Roman castellum, yet it does not appear to have been mentioned in history until the beginning of the 14th century, when it belonged to Thomas, Earl of Lancaster, grandson of Henry III., and General of the Confederate army which opposed Edward III. In 1462 the castle was destroyed by Edward IV. and dismantled, since which time it appears to have been in ruins. Nothing now remains but the outworks on the west and south sides, which, with stupendous basalt cliffs towards the sea, enclose a plain, nearly square, consisting of about nine acres. The whinstone rocks to the north are perpendicular, of a columnar form, about thirty feet in height, black and gruesome, the shore rugged, covered with broken rocks overgrown with seaweed. An excellent lunch was served by Mr. Hall, of the Star Hotel, Alnwick. Mr. Grey, whose thoughtful kindness was beyond praise, had meantime returned to Howick, and now rode back to intimate that rooms and fires were awaiting the still wet and chilly ones at the Howick mansion, an announcement which was as timely as it was welcome, and in a few moments the desolate sea and coast were left to the caterer and his assistants, a few fishermen, and a fragment of a German band, which persisted in enlivening the lunch with a series of English airs, *à l'Allemand*. "Home, Sweet Home," and "God Save the Queen," will not soon be forgotten. The first glint of sunshine pierced the cloud as the brakes were boarded, and the rain had entirely ceased as they drew up at Howick. Very soon "bits of blue" appeared, the sun completely changed, and white fleecy clouds took the place of the darker ones of the morning, and a delightful afternoon was spent by all parties. Thanks were given to Mr. Grey for his kind reception.—*Newcastle Chronicle*.

THE IMPERIAL DECREE ON RAILWAY EXTENSION IN CHINA.

(From the *Times*.)

[Read at the Meeting, in the Library, December 20th, 1889.]

THE DECREE.

"The Admiralty has submitted a memorial on railways, in which it recommends that the suggestion of Chang Chih-tung to build a line direct from Lu-kow K'iao to Hankow should be carried out. This, the Admiralty is of opinion, should be commenced from both ends as a tentative measure; in the south from Hankow to Sin-yang Chow, in the north from Lu-kow K'iao to Chêng-ting Fu, leaving the intervening sections for a future period. Li Hung Chang will consult with the Admiralty on the details of the necessary arrangements to be made with a view of at once giving effect to the scheme proposed. Chow Fu, provincial judge of Chihli, and the Taotai Pan Chün-teh are selected, from their experience in railway affairs, to superintend the carrying out of the preliminary steps. The Sovereign is of opinion that to make a country powerful railways are essential; but, recognising that at the outset the people will have doubts and suspicions, orders the viceroys and governors of Chihli, Hupeh, and Honan to issue explanatory proclamations to them exhorting and commanding them to throw no impediment in the way. It is the Imperial desire that all shall work together to make this great work a success."

The *Times* remarks on the above decree:—

"Lu-kow, from whence the line is to start on the Peking side, is about five miles south of that capital, on the borders of a hunting park of the Emperor. Half the line, it will be observed, is to be constructed by Li Hung Chang and half by Chang Chih-tung, who has just been transferred for the purpose from the vice-royalty of Canton to that of the Hu province, at the capital of which the line will practically terminate for the present. In a memorial from Chang, recently summarised from the *Times*, he advised that the line should be constructed with Chinese capital, men, and materials. Li, at any rate, does not intend to pay any attention to this recommendation of his colleague, for he has already transferred the whole foreign staff of the existing Maiping-Tientsin line to the new railway. It is reported that he has no intention of borrowing any large sum abroad, but that he will borrow for the purpose of constructing each successive section. He is about to conclude arrangements for a five-per-cent loan of five million taels, or, roughly, a million and a quarter sterling, for the first section. He is also said to have invited the co-operation of Tong King-Sing, the greatest of Chinese merchants, who has already been identified with the viceroy in the development of the Kaiping coal mines, and in various other large mercantile enterprises. The abandonment of Li Hung Chang's favourite scheme of an extension of the Tientsin line to Tungchow, near Peking, is now understood to have been due to the hostility of a crowd of officials in the capital who make large illicit profits by the transport of the tribute rice from the Yangtze provinces between Tientsin and Peking. The viceroy was defeated, and if he accepted the defeat it was only *reculer pour mieux sauter*.

"It is scarcely necessary to point out that the edict which we print above marks a new era in the history of China. The existing railway was smuggled in, as it were. It was first a tram-line to carry coals from the Kaiping mines to the banks of a neighbouring canal. Then an enterprising young engineer put an engine on it, and a few years ago a correspondent of the *Times*, writing from North China, gave an amusing account of the manner in which he succeeded in inducing the Mandarins, his official superiors, to permit their august persons to be conveyed by the steam monster. Gradually the line became familiar in the locality; it attracted Li's attention, it was extended little by little stealthily, until at last it reached Tientsin. It was never liked at Peking, and its extension was successfully opposed; but now the Emperor solemnly declares it to be his opinion that railways are essential to the power of the country, and in due time they will no doubt be extended as widely, if not so rapidly, as the telegraphs, which, in seven years, have spread all over the eighteen provinces, from the Pacific to the borders of Tibet, from the Amour to Tonquin."

A New Zealand Viaduct.—The Wingatui viaduct, on the New Zealand Government railways, has just been formally opened by Sir R. Stout, the Premier of the colony. It crosses a deep ravine known as Mullocky Gully. The length of the viaduct is 690ft., and there are eight spans, three of 106ft. each, and five of 66ft. each. The piers next to the abutments are of concrete; and the others, five in number, are of malleable iron, resting on foundation blocks of concrete and masonry. The girders are of malleable iron of the usual construction. The total height of the bridge from the creek bed to the level of the top of the buttress is 154ft. 8in. There are 3,850 cubic yards of masonry and rubble in the bridge, and 574 tons of iron. The cost of the work was £22,000. The masonry was erected by Messrs. Black and Allison, their contract being about £8,000. The ironwork was supplied by Messrs. R. S. Sparrow and Co., and cost about £14,000. The smaller girders were built in their places, but the main girders were built on the ground and raised by hydraulic presses specially designed and made by Messrs. Sparrow and Co. The girders weigh 40 tons each.—*Engineering.*

The Strophanthus Plant.—Colonel Hawes has sent home the following account of this plant (native name *Kombe*), which grows in the Nyassa region: "Strophanthus is considered the most powerful poison the natives possess. It is found at a low level, and, as far as I can gather from personal observation and native sources, is not to be had on the high land. The supplies hitherto obtained have been drawn from the right bank of the river Shiré below the Murchison Rapids. There is, apparently, more than one species, or at least variety, the distinguishing feature being a much smaller pod and fewer seeds. At present information relative to these other varieties is scant. The strophanthus is a strong climbing plant, and is always found in the vicinity of high trees, on which it supports itself. The stem varies in diameter, but has an average of a few inches. It lies on the ground in folds, the branches supporting themselves on the nearest trees. The young branches have a rod-like habit, and are in appearance not unlike elder. The fruit grows in pairs, and has a peculiar appearance, very like a pair of immense horns hanging to a slender twig. The fruit begins to ripen in July, and lasts till the end of September. Judging from the few plants I have reared here, it would appear to be a strong growing plant. The natives are quite ignorant of its age, or how old a plant may be before it bears fruit. The native method of preparing the poison is very simple. They first clean the seeds of their hairy appendages, and then pound them in a mortar until they have reduced them to a pulp. A little water is then added. This is done by using the bark of a tree containing a gummy substance, which helps to keep the poison on the arrow in the event of its striking against a bone. The poison thus prepared is spread upon the arrow, and allowed to dry. Game wounded by arrow poisoned with strophanthus die quickly. The flesh is eaten without evil effect. The only precaution taken is to squeeze the juice of the baobab bark on the wound made by the arrow, and this counteracts the evil effect of the poison. Buffalo and all smaller game are killed by this poison."

THE CHARTER OF INCORPORATION OF THE BRITISH SOUTH
AFRICA COMPANY.

VICTORIA by the Grace of God, of the United Kingdom of Great Britain and Ireland,
Queen, Defender of the Faith.

To all to whom these presents shall come, greeting:

Whereas a humble petition has been presented to us in our Council by the Most Noble James, Duke of Abercorn, companion of the Most Honourable Order of the Bath; the Most Noble Alexander William George, Duke of Fife, knight of the Most Ancient and Most Noble Order of the Thistle, Privy Councillor; the Right Honourable Edric Frederick, Lord Gifford, V.C.; Cecil John Rhodes, of Kimberley, in the Cape Colony, member of the Executive Council and of the House of Assembly of the Colony of the Cape of Good Hope; Alfred Beit, of 29, Holborn Viaduct, London, merchant; Albert Henry George Grey, of Howick, Northumberland, esquire; and George Cawston, of 18, Lennox Gardens, London, esquire, barrister-at-law.

And whereas the said petition states amongst other things:—

That the petitioners and others are associated for the purpose of forming a company or association, to be incorporated, if to us should seem fit, for the objects in the said petition set forth, under the corporate name of "The British South Africa Company."

That the existence of a powerful British company, controlled by those of our subjects in whom we have confidence, and having its principal field of operations in that region of South Africa lying to the north of Bechuanaland and to the west of Portuguese East Africa, would be advantageous to the commercial and other interests of our subjects in the United Kingdom and in our colonies.

That the petitioners desire to carry into effect divers concessions and agreements which have been made by certain of the chiefs and tribes inhabiting the said region, and such other concessions, agreements, grants, and treaties as the petitioners may hereafter obtain within the said region or elsewhere in Africa, with the view of promoting trade, commerce, civilisation, and good government (including the regulation of liquor traffic with the natives) in the territories which are or may be comprised or referred to in such concessions, agreements, grants, and treaties as aforesaid.

That the petitioners believe that if the said concessions, agreements, grants, and treaties can be carried into effect, the condition of the natives inhabiting the said territories will be materially improved and their civilisation advanced, and an organisation established which will tend to the suppression of the slave trade in the said territories, and to the opening up of the said territories to the immigration of Europeans, and to the lawful trade and commerce of our subjects and of other nations.

That the success of the enterprise in which the petitioners are engaged would be greatly advanced if it should seem fit to us to grant them our royal charter of incorporation as a British company under the said name or title, or such other name or title, and with such powers as to us may seem fit, for the purpose of more effectually carrying into effect the objects aforesaid.

That large sums of money have been subscribed for the purposes of the intended company by the petitioners and others, who are prepared also to subscribe or to

procure such further sums as may hereafter be found requisite for the development of the said enterprise, in the event of our being pleased to grant to them our royal charter of incorporation as aforesaid.

Now, therefore, we having taken the said petition into our royal consideration in our Council, and being satisfied that the intentions of the petitioners are praiseworthy and deserve encouragement, and that the enterprise in the petition described may be productive of the benefits set forth therein, by our prerogative royal and of our especial grace, certain knowledge, and mere motion, have constituted, erected, and incorporated, and by this our charter for us and our heirs and royal successors do constitute, erect, and incorporate into one body politic and corporate, by the name of "The British South Africa Company," the said James Duke of Abercorn, Alexander William George Duke of Fife, Edric Frederick Lord Gifford, Cecil John Rhodes, Alfred Beit, Albert Henry George Grey, and George Cawston, and such other persons and such bodies as from time to time become and are members of the body politic and corporate by these presents constituted, erected, and incorporated with perpetual succession and a common seal, with power to break, alter, or renew the same at discretion, and with the further authorities, powers, and privileges conferred, and subject to the conditions imposed by this our charter; and we do hereby accordingly will, ordain, give, grant, constitute, appoint, and declare as follows (that is to say):—

1. The principal field of the operations of The British South Africa Company (in this our charter referred to as "the company") shall be the region of South Africa lying immediately to the north of British Bechuanaland, and to the north and west of the South African Republic, and to the west of the Portuguese dominions.

2. The company is hereby authorised and empowered to hold, use, and retain for the purposes of the company and on the terms of this our charter, the full benefit of the concessions and agreements made as aforesaid, so far as they are valid, or any of them, and all interests, authorities, and powers comprised or referred to in the said concessions and agreements. Provided always that nothing herein contained shall prejudice or affect any other valid and subsisting concessions or agreements which may have been made by any of the chiefs or tribes aforesaid. And in particular nothing herein contained shall prejudice or affect certain concessions, granted in and subsequent to the year 1880, relating to the territory usually known as the district of the Tati, nor shall anything herein contained be construed as giving any jurisdiction, administrative or otherwise, within the said district of the Tati, the limits of which district are as follows, viz.: from the place where the Shasi river rises to its junction with the Tati and Ramaquaban rivers, thence along the Ramaquaban river to where it rises, and thence along the watershed of those rivers.

3. The company is hereby further authorised and empowered, subject to the approval of one of our principal Secretaries of State (herein referred to as "our Secretary of State"), from time to time, to acquire, by any concession, agreement, grant, or treaty, all or any rights, interests, authorities, jurisdictions, and powers of any kind or nature whatever, including powers necessary for the purposes of government and the preservation of public order in or for the protection of territories, lands, or property comprised or referred to in the concessions and agreements made as aforesaid or affecting other territories, lands, or property in Africa, or the inhabitants thereof, and to hold, use, and exercise such territories, lands, property, rights, interests, authorities, jurisdictions, and powers respectively for the purposes of the company and on the terms of this our charter.

4. Provided that no powers of government or administration shall be exercised under or in relation to any such last-mentioned concession, agreement, grant, or treaty, until a copy of such concession, agreement, grant, or treaty, in such form and with such

maps or particulars as our Secretary of State approves verified as he requires, has been transmitted to him, and he has signified his approval thereof either absolutely or subject to any conditions or reservations. And provided also that no rights, interests, authorities, jurisdictions, or powers of any description shall be acquired by the company within the said district of the Tati, as hereinbefore described, without the previous consent in writing of the owners for the time being of the concessions above referred to relating to the said district, and the approval of our Secretary of State.

5. The company shall be bound by and shall fulfil all and singular the stipulations on its part contained in any such concession, agreement, grant, or treaty as aforesaid, subject to any subsequent agreement affecting those stipulations approved by our Secretary of State.

6. The company shall always be and remain British in character and domicile, and shall have its principal office in Great Britain, and the company's principal representative in South Africa, and the directors shall always be natural born British subjects, or persons who have been naturalised as British subjects by or under an Act of Parliament of our United Kingdom; but this article shall not disqualify any person nominated a director by this our charter, or any person whose election as a director shall have been approved by our Secretary of State, from acting in that capacity.

7. In case at any time any difference arises between any chief or tribe inhabiting any of the territories aforesaid and the company, that difference shall, if our Secretary of State so require, be submitted by the company to him for his decision, and the company shall act in accordance with such decision.

8. If at any time our Secretary of State thinks fit to dissent from or object to any of the dealings of the company with any foreign power, and to make known to the company any suggestion founded on that dissent or objection, the company shall act in accordance with such suggestion.

9. If at any time our Secretary of State thinks fit to object to the exercise by the company of any authority, power, or right within any part of the territories aforesaid, on the ground of there being an adverse claim to or in respect of that part, the company shall defer to that objection until such time as any such claim has been withdrawn or finally dealt with or settled by our Secretary of State.

10. The company shall, to the best of its ability, preserve peace and order in such ways and manners as it shall consider necessary, and may with that object make ordinances (to be approved by our Secretary of State), and may establish and maintain a force of police.

11. The company shall, to the best of its ability, discourage, and, so far as may be practicable, abolish by degrees, any system of slave trade or domestic servitude in the territories aforesaid.

12. The company shall regulate the traffic in spirits and other intoxicating liquor within the territories aforesaid, so as, as far as practicable, to prevent the sale of any spirits or other intoxicating liquor to any natives.

13. The company as such, or its officers as such, shall not in any way interfere with the religion of any class or tribes of the peoples of the territories aforesaid, or of any of the inhabitants thereof, except so far as may be necessary in the interests of humanity, and all forms of religious worship or religious ordinances may be exercised within the said territories, and no hindrance shall be offered thereto except as aforesaid.

14. In the administration of justice to the said peoples or inhabitants, careful regard shall always be had to the customs and laws of the class, or tribe, or nation to which the parties respectively belong, especially with respect to the holding, possession, transfer, and disposition of land and goods, and testate or intestate succession thereto,

and marriage, divorce, and legitimacy, and other rights of property and personal rights, but subject to any British laws which may be in force in any of the territories aforesaid, and applicable to the peoples or inhabitants thereof.

15. If at any time our Secretary of State thinks fit to dissent from or object to any part of the proceedings or system of the company, relative to the peoples of the territories aforesaid, or to any of the inhabitants thereof, in respect of slavery or religion, or the administration of justice, or any other matter, he shall make known to the company his dissent or objection, and the company shall act in accordance with his directions duly signified.

16. In the event of the company acquiring any harbour or harbours, the company shall freely afford all facilities for or to our ships therein, without payment, except reasonable charges for work done, or services rendered, or materials or things supplied.

17. The company shall furnish annually to our Secretary of State, as soon as conveniently may be after the close of the financial year, accounts of its expenditure for administrative purposes, and of all sums received by it by way of public revenue, as distinguished from its commercial profits, during the financial year, together with a report as to its public proceedings and the condition of the territories within the sphere of its operation. The company shall also, on or before the commencement of each financial year, furnish to our Secretary of State an estimate of its expenditure for administrative purposes, and of its public revenue (as above defined) for the ensuing year. The company shall, in addition, from time to time furnish to our Secretary of State any reports, accounts, or information with which he may require to be furnished.

18. The several officers of the company shall, subject to the rules of official subordination and to any regulations that may be agreed upon, communicate freely with our High Commissioner in South Africa and any others our officers who may be stationed within any of the territories aforesaid, and shall pay due regard to any requirements, suggestions, or requests which the said High Commissioner or other officers shall make to them, or any of them, and the company shall be bound to enforce the observance of this article.

19. The company may hoist and use on its buildings and elsewhere in the territories aforesaid, and on its vessels, such distinctive flag indicating the British character of the company as our Secretary of State and the Lords Commissioners of the Admiralty shall from time to time approve.

20. Nothing in this our charter shall be deemed to authorise the Company to set up or grant any monopoly of trade ; provided that the establishment of or the grant of concessions for banks, railways, tramways, docks, telegraphs, waterworks, or other similar undertakings, or the establishment of any system of patent or copyright approved by our Secretary of State, shall not be deemed monopolies for this purpose. The company shall not, either directly or indirectly, hinder any company or persons who now are or hereafter may be lawfully and peaceably carrying on any business concern or venture within the said district of the Tati hereinbefore described, but shall by permitting and facilitating transit by every lawful means to and from the district of the Tati, across its own territories, or where it has jurisdiction in that behalf, and, by all other reasonable and lawful means, encourage, assist and protect all British subjects who now are or hereafter may be lawfully and peaceably engaged in the prosecution of a lawful enterprise within the said district of the Tati.

21. For the preservation of elephants and other game, the company may make such other regulations and (notwithstanding anything hereinbefore contained) may impose such licence duties on the killing or taking of elephants or other game as they think fit. Provided that nothing in such regulations shall extend to diminish or interfere with any hunting rights which may have been or may hereafter be reserved

to any native chiefs or tribes by treaty, save so far as any such regulations may relate to the establishment and enforcement of a close season.

22. The company shall be subject to and shall perform and undertake all the obligations contained in or undertaken by ourselves, under any treaty agreement or arrangement between ourselves, and any other state or power whether already made or hereafter to be made. In all matters relating to the observance of this article, or to the exercise within the company's territories for the time being, of any jurisdiction exercisable by us under the Foreign Jurisdiction Acts, the company shall conform to and observe and carry out all such directions as may from time to time be given in that behalf by our Secretary of State, and the company shall appoint all necessary officers to perform such duties, and shall provide such courts and other requisites as may from time to time be necessary for the administration of justice.

23. The original share capital of the company shall be £1,000,000, divided into 1,000,000 shares of £1 each.

24. The company is hereby further specially authorised and empowered for the purposes of this our charter from time to time—

- (i) To issue shares of different classes or descriptions, to increase the share capital of the company, and to borrow moneys by debentures or other obligations.
- (ii) To acquire and hold, and to charter or otherwise deal with, steam vessels and other vessels.
- (iii) To establish or authorise banking companies and other companies and undertakings or associations of every description, for purposes consistent with the provisions of this our charter.
- (iv) To make and maintain roads, railways, telegraphs, harbours, and any other works which may tend to the development or improvement of the territories of the company.
- (v) To carry on mining and other industries, and to make concessions of mining, forestal, or other rights.
- (vi) To improve, develop, clear, plant, irrigate, and cultivate any lands included within the territories of the company.
- (vii) To settle any such territories and lands as aforesaid, and to aid and promote immigration.
- (viii) To grant lands for terms of years or in perpetuity, and either absolutely or by way of mortgage or otherwise.
- (ix) To make loans or contribution, of money or money's worth, for promoting any of the objects of the company.
- (x) To acquire and hold personal property.
- (xi) To acquire and hold (without licence in mortmain or other authority than this our charter) lands in the United Kingdom, not exceeding five acres in all, at any one time, for the purposes of the offices and business of the company, and (subject to any local law) lands in any of our colonies or possessions and elsewhere, convenient for carrying on the management of the affairs of the company, and to dispose from time to time of any such lands when not required for that purpose.
- (xii) To carry on any lawful commerce, trade, pursuit, business, operations, or dealing whatsoever in connection with the objects of the company.
- (xiii) To establish and maintain agencies in our colonies and possessions, and elsewhere.
- (xiv) To sue and be sued by the company's name of incorporation, as well in our courts in our United Kingdom, or in our courts in our colonies or possessions, or in our courts in foreign countries or elsewhere.

- (xv) To do all lawful things incidental or conducive to the exercise or enjoyment of the rights, interests, authorities, and powers of the company in this our charter expressed or referred to, or any of them.

25. Within one year after the date of this our charter, or such extended period as may be certified by our Secretary of State, there shall be executed by the members of the company for the time being a deed of settlement, providing so far as necessary for—

- (i) The further definition of the objects and purposes of the company.
- (ii) The classes or descriptions of shares into which the capital of the company is divided, and the calls to be made in respect thereof, and the terms and conditions of membership of the company.
- (iii) The division and distribution of profits.
- (iv) General meetings of the company ; the appointment by our Secretary of State (if so required by him) of an official director, and the number, qualification, appointment, remuneration, rotation, removal, and powers of directors of the company, and of other officers of the company.
- (v) The registration of members of the company, and the transfer of shares in the capital of the company.
- (vi) The preparation of annual accounts to be submitted to the members at a general meeting.
- (vii) The audit of those accounts by independent auditors.
- (viii) The making of bye-laws.
- (ix) The making and using of official seals of the company.
- (x) The constitution and regulation of committees or local boards of management.
- (xi) The making and execution of supplementary deeds of settlement.
- (xii) The winding up (in case of need) of the company's affairs.
- (xiii) The government and regulation of the company and of its affairs.
- (xiv) Any other matters usual or proper to be provided for in respect of a chartered company.

26. The deed of settlement shall, before the execution thereof, be submitted to and approved by the lords of our council, and a certificate of their approval thereof, signed by the clerk of our council, shall be endorsed on this our charter, and be conclusive evidence of such approval, and on the deed of settlement, and such deed of settlement shall take effect from the date of such approval, and shall be binding upon the company, its members, officers, and servants, and for all other purposes whatsoever.

27. The provisions of the deed of settlement, or of any supplementary deed, for the time being in force, may be from time to time repealed, varied, or added to by a supplementary deed, made and executed in such manner as the deed of settlement prescribes. Provided that the provisions of any such deed, relative to the official director, shall not be repealed, varied, or added to without the express approval of our Secretary of State.

28. The members of the company shall be individually liable for the debts, contracts, engagements, and liabilities of the company to the extent only of the amount, if any, for the time being unpaid, on the shares held by them respectively.

29. Until such deed of settlement as aforesaid takes effect, the said James Duke of Abercorn shall be the president ; the said Alexander William George Duke of Fife shall be vice-president ; and the said Edric Frederick Lord Gifford, Cecil John Rhodes, Alfred Beit, Albert Henry George Grey, and George Cawston, shall be the directors of the company ; and may, on behalf of the company, do all things necessary or proper to be done under this our charter, by or on behalf of the company. Provided always that, notwithstanding anything contained in the deed of settlement of the company, the said James Duke of Abercorn, Alexander William George Duke of Fife, and

Albert Henry George Grey, shall not be subject to retire from office in accordance with its provisions, but shall be and remain directors of the company until death, incapacity to act, or resignation, as the case may be.

30. And we do further will, ordain, and declare that this our charter shall be acknowledged by our governors, and our naval and military officers, and our consuls, and our other officers in our colonies and possessions, and on the high seas and elsewhere, and they shall severally give full force and effect to this our charter, and shall recognise and be in all things aiding to the company and its officers.

31. And we do further will, ordain, and declare that this our charter shall be taken, construed, and adjudged in the most favourable and beneficial sense for, and to the best advantage of, the company as well in our courts in our United Kingdom, and in our courts in our colonies or possessions, and in our courts in foreign countries or elsewhere, notwithstanding that there may appear to be in this our charter any non-recital, mis-recital, uncertainty, or imperfection.

32. And we do further will, ordain, and declare that this our charter shall subsist and continue valid, notwithstanding any lawful change in the name of the company or in the deed of settlement thereof, such change being made with the previous approval of our Secretary of State signified under his hand.

33. And we do further will, ordain, and declare that it shall be lawful for us, our heirs and successors, and we do hereby expressly reserve to ourselves, our heirs and successors, the right and power, by writing under the great seal of the United Kingdom, at the end of 25 years from the date of this our charter, and at the end of every succeeding period of ten years, to add, to alter, or repeal any of the provisions of this our charter, or to enact other provisions in substitution for, or in addition to, any of its existing provisions. Provided that the right and power thus reserved shall be exercised only in relation to so much of this our charter as relates to administrative and public matters. And we do further expressly reserve to ourselves, our heirs and successors, the right to take over any buildings or works belonging to the company, and used exclusively or mainly for administrative or public purposes, on payment to the company of such reasonable compensation as may be agreed, or as, failing agreement, may be settled by the Commissioners of our Treasury. And we do further appoint, direct, and declare that any such writing under the said great seal shall have full effect, and be binding upon the company, its members, officers, and servants, and all other persons, and shall be of the same force, effect, and validity as if its provisions had been part of and contained in these presents.

34. Provided always and we do further declare that nothing in this our charter shall be deemed or taken in anywise to limit or restrict the exercise of any of our rights or powers with reference to the protection of any territories, or with reference to the government thereof, should we see fit to include the same within our dominions.

35. And we do lastly will, ordain, and declare, without prejudice to any power to repeal this our charter by law belonging to us, our heirs and successors, or to any of our courts, ministers, or officers, independently of this present declaration and reservation, that in case at any time it is made to appear to us in our council that the company has substantially failed to observe and conform to the provisions of this our charter, or that the company is not exercising its powers under the concessions, agreements, grants, and treaties aforesaid, so as to advance the interests which the petitioners have represented to us to be likely to be advanced by the grant of this our charter, it shall be lawful for us, our heirs and successors, and we do hereby expressly reserve and take to ourselves, our heirs and successors, the right and power by writing under the great seal of our United Kingdom to revoke this our charter, and to revoke and annul the privileges, powers, and rights hereby granted to the company.

In witness whereof we have caused these our letters to be made patent.

Witness ourself at Westminster, the 29th day of October, in the fifty-third year of our reign.

By warrant under the Queen's sign manual.



MUIR MACKENZIE.

English History as Read in Geography, by the Rev. J. P. Whitney, M.A. (read to the Members, in the Library, December 15, 1889).—He desired to bring before them some aspects of the history of our country which was, or ought to be, dear to every one of them, and if he could persuade them that the study of history and geography could be combined in such a way that they could be made more living and not a mere dull list of names, but something instinct with life of the past and fuller significance for the present, then his lecture would not have been a fruitless one. What could they glean if they examined the face and features of our country? The first thing that struck them was that its true face was towards the south-east. Then they had some evidences of the foundation of the Romans. From the contemplation of sculls they were able to glean a great deal of the history of a country and of the habits of the races then inhabiting that country. The lecturer pointed out at length how the physical aspects of our country affected the distribution of races to a considerable extent. The east was the first part to be attacked and settled in, and races did not penetrate west so quickly owing to the physical characteristics of the land. The history of the country showed, however, a gradual pushing westward of the weaker races. Dialect gave them much information as to the country's history. Speaking of Roman civilisation, the lecturer said it did not affect the country districts, only the towns. Passing on to the English conquest, Mr. Whitney said its first result was that the earlier races were driven to the west. The effect of climate upon personal character had often been remarked upon, and it undoubtedly had a large effect upon the formation of the character, not only of individuals but nations. If they depicted the English nature according to the climate, it would be unflattering, but our climate was such that it strengthened our character. Our ancestors developed great self-reliance, and we knew well enough the difference between the energetic Englishman and the lazy Italian—that was due, to a great extent, to the difference in the climate of the two countries. Referring to the marking out of the country into so many parts, the lecturer said there must have been a great difference in the habits and characteristics of the people living in those parts, and that was why it was so difficult to make the people unite in one cause—there were so many local differences. In speaking of the Danes, the rev. gentleman said that invasion, which seemed a sign of weakness, was a source of strength. Much information could be gained by studying the names of streets, villas, and churches. Proceeding to touch on the names of counties, the lecturer said when the names of counties concluded with “bury, ham, and stone,” when they found those names dated from an earlier time, they might be fairly sure that there English people settled. Nearly all the names in our country were purely English names, and the study of these names was found to confirm the results they had arrived at in another way. There was no doubt they owed a very valuable simplification of names to the Danish invaders. For instance, but for the Danes the Scarborough and Whitby Railway would have been Scarborough and Streonshalh Railway. The different invasions of population were all to be found written upon the actual face of the country. In concluding a most interesting and instructive lecture, Mr. Whitney said the general attitude with regard to the study of the history and geography of our country was one of unqualified indifference, and that was because people never remembered how much they were indebted to past history. When they took

geography in connection with history, they found that the latter became much more connected with themselves and geography much more living. The lecturer ridiculed the manner of teaching these subjects formerly adopted in schools, and said it was no wonder that children considered both so wearisome. What they ought to do if they wished to make the study of history more living, and that of geography something to educate their senses, and teach them how to use their eyes and minds, was to bring the study of the history of our own land in connection with the study of our geography. The lecture was illustrated by several admirable maps.

The Portuguese in the Shiré Highlands.—The following is from the *Manchester Guardian*: Sir,—In view of the recently-reported statements with which Major Serpa Pinto is credited, I think it right to hand you for publication the following extract from advices which we have just received from our settlements in the Shiré Highlands. It gives a clear account of the procedure of the Portuguese officials. It will be seen that the Portuguese expedition crossed the boundary line of the Ruo, penetrated to Katungas, a long distance into the territory of the British protectorate, and there hauled down the British flag. It is not likely that European opinion will accept Major Serpa Pinto's assurance that too much is being made of these matters.

[EXTRACT.]

Katungas, 3rd January, 1890. About 1-30 p.m. on the 2nd inst. the news arrived that the Portuguese were coming, to test the truth of which Messrs. Wilson and Nash went over to the village Mwanza, and there met about one dozen of their soldiers, who on being asked what they wanted ran off, "taking with them a gun which was standing against a tree," with Messrs. Wilson, Nash, and several of the Makololo in pursuit, who followed them as far as the stream. They failed to recapture the gun. Mr. Wilson then returned to the station and sent off letters to Mr. Moir, and then again went to the village with MacCulloch and Nash. They had not been there very long when the full force of five hundred men arrived, followed by the leaders, Senhor Paiva and two half-castes. Paiva shook hands with them, and after a little said, "I see you have the English flag up there; can you show me a written permit from the Governor of the Shiré to have it flying?" Mr. Wilson replied that as it had been hoisted by the British Consul, and was on the ground of the English protectorate, no permit was necessary. He then said, "It is on Portuguese ground, and I request you to take it down," which Mr. Wilson refused to do. He was very polite, and said he was of course only following his instructions. He again said, "I respectfully request you to take the flag down;" and after being refused again said, "Well, I proceed to do so." Mr. Wilson told him that as he had might on his side of course he could not prevent him. He then hauled down the red ensign, amid a salute of twenty one guns and the "Boo, boo, boo" of his soldiers, and then in its place hoisted the Portuguese flag amid another salute of twenty one guns. Mr. Wilson was then requested to haul down the flag at the station, which he refused to do. Then Paiva hauled it down and offered it to Messrs. Wilson, Nash, MacCulloch separately, all refusing to take it. Mr. Wilson told him that he could keep it, and that we would get it back with all the others when we were hoisting them up again. They then had a long talk about things, Paiva saying that he could not say if he was going to Blantyre, but he had applied for three months' leave in order to visit Lake Nyassa. He also asked the distance to Chirala. He said he was going to leave sixty men in possession of the village, and he then left in a canoe, and it turned out later that he had left all his men with the exception of one or two, who had gone in the canoe with him. He also left word that he would be at Masca's village until 10-30 a.m. the next day. Sixteen women are now in Katungas station in terror of their lives. The boys say they will kill all Portuguese found singly. They say we tell them not to fight, then leave them, and let the Portuguese do what they like. A native report says that they will make a stand at Chirala, as it is the last chance, and they can only be beaten, in which case they will be no worse off than now.

Further facts might be adduced of other actions of this so-called scientific expedition of the Portuguese, but the foregoing will in the meantime suffice for the present case in point. It is added in our advices from Mandala that the chiefs there could not have behaved better than they have done. They had gathered into Mandala and Blantyre, and were waiting for the protection of this country, which Lord Salisbury has so efficiently and reasonably sustained.—I am, &c., WILLIAM EWING, Secretary African Lakes Company, Limited. March 25, 1890.

THE HARDY NORSEMEN.*

[Read to the Members in the Library, December 15th, 1889.]

It is twenty-eight years since M. Du Chaillu startled an incredulous world with the story of his adventures in a land whose forests are the home of a surviving cousin of our remotest ancestors. No less startling to many will be his latest discovery that the English-speaking peoples are the descendants, not of the supposed Teutonic "Angles and Jutes and Saxons," but of the ruthless Vikings, those hardy Norsemen who "bravely fought like heroes bold, and ruled the stormy sea." M. Du Chaillu's statements about the gorilla have long ago been confirmed and accepted by men of science. It may in the end turn out that there is a large grain of truth in the position he takes up with regard to the ancestors of the English-speaking nations. Some of his contentions probably no one will seek to deny. He maintains that the conquest of a great island country like Britain must have been accomplished by a people accustomed to navigation, and with ships numerous and large enough to convey great bodies of warriors and colonists. The only people he can find in the earlier centuries of our era who were in this position were the Scandinavians, whereas the so-called Germanic people, the people described by the Roman historians, had, according to M. Du Chaillu, no fleets at all. But the position taken up by what may be called the orthodox English historian is that the people who effected the conquest of Britain, after the Romans left, came from the south of that peninsula which is now essentially Scandinavia, and the districts to the south and south-east of that. The evidence for this is so clear that it will take a good deal to refute it. True, these people may have filtered downwards from the north, and have been essentially of the same type as the Scandinavian. The one difficulty, however, is language. As far back as we can go we find that the earlier forms of what became English were unlike, in several important respects, what the Scandinavian is now and has been since we knew it, and much more like its southern sister the German. But no one will deny that both in quantity and quality the Norse element in England and in Scotland is very powerful; that Northmen must have been crossing and settling on our east coasts, at least in the north, from a very early period, probably even before "Hengist and Horsa;" and that, not long after the date usually assigned to these heroes, the Danes, or Vikings, or Norsemen, came over in ever-increasing numbers, and that the British seas for long before the Norman Conquest swarmed with their formidable ships. But to enter into anything like a critical examination of the position taken up by M. Du Chaillu would occupy far more space than can be spared here. M. Du Chaillu is nothing if not original. He was daring enough a few years ago to write a book on the "Land of the Midnight Sun," which had all the freshness of a narrative of original discovery, and that partly because the author abstained from reading other books, and spent seven years in the country in the same inquisitive way that he did in Central Africa. It is evident, also, from this new book, that he has approached the subject unbiassed by the study of the mass of literature that has been produced in connection with it, which some may consider a doubtful advantage. He tells us that he was impelled to his inquiry by finding that over every region of the globe the spread of the English-

* "The Viking Age: the Early History, Manners, and Customs of the Ancestors of the English-Speaking Nations. Illustrated from the Antiquities discovered in Mounds, Cairns, and Bogs, as well as from the Ancient Sagas and Eddas." By Paul E. Du Chaillu. With 1,366 illustrations and map. Two vols. London, John Murray. 1889.

speaking people and of their language far exceeds that of all the other European nations combined. "Wherever the English-speaking people have settled, or are at this day found, even in small numbers, they are far more energetic, daring, adventurous, and prosperous, and understand the art of self-government and of ruling alien peoples far better than other colonising nations." In M. Du Chaillu's view we must look for the ancestors of the widespread people whom he has so happily and flatteringly characterised, not among the poor-spirited Britons whom the Romans left behind them, not among those so-called Germanic nations whom he tells us the Romans wrote of as savages who had scarcely a single ship, but among those Scandinavian Vikings who, although merciless in invasion and battle, had ships by thousands, an elaborate social and political system, were skilful in the arts, were rich beyond conception in elaborately-wrought ornaments, implements, and weapons, in gold, and silver, and iron, and copper, had their swords damascened and their brooches enamelled, who even in the ninth century could venture as far as Iceland, and discovered America 400 years before Columbus. Scandinavian writers have gone into all this, but the English public have much to learn on a subject which to them ought to be of large interest. It is not necessary to go as far as M. Du Chaillu in order to believe that we and our kinsmen all over the world are inheritors to a large extent of this primitive vigour and early civilisation, and to feel a keen interest in its characteristics and origin. This latter point, it seems to us, has still to be worked out, though the general opinion seems to be that we must look for it on the shores of the Black Sea. But the truth is that what may be regarded as the controversial part of his book occupies but small space, mainly only the first three chapters. Still, even from the historical and ethnological standpoint, M. Du Chaillu's introductory chapters will have rendered a real service if they lead to an entire reinvestigation of the whole question of the origin and migrations of the leading races which now inhabit Europe and Asia. We have got into the habit, mainly from certain attractively-presented linguistic considerations, of looking for the home of the great Indo-European family in Central Asia, from which, according to the popular conception, they spread, wave after wave, as if by some preconceived arrangement. The whole subject requires reconsideration, and that on a basis in which language should not play the supreme part it has hitherto taken. M. Du Chaillu's position receives some countenance from the new German school which is represented in this country by Professor Sayce and Canon Taylor, which would look for the home of the Aryans in Scandinavia and its neighbourhood, and would end by making us all to be "improved Fins." On the other side we have a corresponding school in France and in Portugal that is incredulous of the Italian origin of the languages spoken in the Iberian Peninsula, and would derive them rather from a stream that found its way south-west long before the Romans approached Hispania. All this shows that a movement is on foot to challenge popularly-accepted conclusions as to the origin and inter-relations of the existing European peoples, and to go into the whole subject afresh. To this movement M. Du Chaillu's work may give a considerable impetus.

Meantime the general reader, who does not care to trouble his mind with such abstruse questions, but who is in search of entertainment and instruction, may be comforted with the fact that out of 1,100 pages M. Du Chaillu devotes only 26 to the discussion of his theory, and that all the rest consists of stories and pictures. True, these are meant to be illustrations and confirmations of the author's theory; and they are, in fact, the raw material on which he has built it, and which may form a mine for future workers. But this need not trouble the mind of the ordinary reader. What M. Du Chaillu has attempted to do is to give a full and detailed picture of the life of the hardy Norsemen, and a vivid impression of what he regards as their

advanced civilisation. This he has done by bringing long extracts from their sagas and other literature alongside of illustrations of the remarkable and multitudinous archaeological finds which have been discovered in graves and mounds and bogs. The great age of some of these finds has been abundantly proved ; some of them go back to the early Stone Age (and, therefore, probably long before the Scandinavian era proper), and in the later stone and the copper age the artistic quality of some of the work is remarkable. With regard to the sagas—and some of them have never before been translated into English—M. Du Chaillu prefixes a list of them, which he quotes, with dates, so that any one may estimate for himself what is the value of the extracts which he gives, so far as proving the antiquity of the Norse civilisation is concerned. As far as possible, too, the dates of the various objects which are shown in the pictures are given, so that any one who chooses may draw his own conclusions, independent of those of the author. Indeed the author, after the first three chapters, keeps pretty well in the background. He is like the showman of a panorama ; he unfolds one scene after another of his long series of pictures of the life and ways and manners of these daring men of old, and contents himself with reciting passages from their own bards and story-tellers bearing on the particular pictures. Indeed the actual illustrations fill a very large part of the book, and one may turn over page after page of pictures with no text upon them except the titles of the illustrations and a statement as to where the objects were found. In this way considerable entertainment can be obtained, and not a little information, without much exertion.

The frontispiece to the first volume is an illustration of the remarkably well-preserved Viking ship found at Gokstad, Norway, a few years ago ; while to the second volume is prefixed a picture of an old Norse chariot, of beautiful workmanship. As one looks through the volumes at the multitude of illustrations, from the pottery and weapons and ornaments of the stone and bronze ages down to the time when iron ruled the day, one cannot but wonder how it was that such a civilisation grew up so comparatively early in a remote country like Scandinavia. It is not necessary to believe that their finely-ornamented bronze vessels, gold ornaments, and damascened swords were actually manufactured among themselves to infer that they must have reached a high stage of civilisation ; the mere fact that such articles found a market there would lead to the same conclusion. And the number of early Roman and Greek coins found in graves and bogs, together with other articles, prove that the Vikings must at an early period have been in contact with Southern Europe. That at least at a later period their vessels scoured the Mediterranean is, of course, beyond dispute, and that in the eighth to the eleventh centuries they made their way up the great European rivers, carrying consternation and havoc wherever they went. The vivid narrative of the Siege of Paris, which M. Du Chaillu quotes in the appendix, affords a striking idea of the organisation of the Viking expeditions, and the elaborate way in which they went to work.

M. Du Chaillu does not attempt to give any connected history of the events of the Viking Age ; that is evidently not the purpose of his book. It is, indeed, a book which may be opened at any chapter ; its great object, as has been indicated, is to let the sagas and the archaeology tell their own story as to the character and the customs of those men who have contributed so important an element to English ethnology. The copious extracts from the *Voluspá*, the *Grímnismál*, and other literary remains in the earlier chapters give, as it were, the raw material from which the striking mythology of the Vikings has been constructed. Several succeeding chapters are devoted to a description of the multitude of objects dating from the Stone Age, which have been found in graves and other places in Scandinavia. These chapters are richly illustrated, and the pictures themselves are enough to prove that these doughty

warriors were not the ruthless savages which the monkish chronicles would make them out to be. Much of what remains of the first volume deals with many aspects of the life of the Norsemen, their religion, their superstitions, their laws, their elaborate regulations as to the land, their social organisation, slavery, their Parliament or "Thing," duelling, outlawry, and many other points. The second volume begins with a few chapters on the subject of marriages, births, and deaths; and the customs and regulations which bore on these important events in the life of a people were of the most elaborate kind. It is very curious to find that among these people, long before they came in contact with Christianity, a form of water-sprinkling or baptism prevailed for infants. First, however, they had to pass an ordeal which reminds one of the well-known Spartan custom; if the child did not satisfy the father that it was sound and healthy, it was exposed to die. This ordeal passed, the child was brought up with every care and attention; and the very man who would not hesitate to impale an enemy's child on his spear-point, would dandle his own with all the tenderness and fondness characteristic of the typical English parent. It was not only a weak constitution that led to the exposure of a newly-born child. Such reasons prevailed as discord between man and wife; dissatisfaction of the wife's father with the union of which the child was the fruit; persuasion of the wife if the husband got a child by a concubine; superstitions as to evil omens at the time of birth; and, finally, the utter inability of the parents to rear the child on account of their poverty. No violent hand, however, was laid on the child to be exposed. One custom was to put the child in a covered grave; but the most common was to leave the death or life of the child to fate, by exposing it in an out-of-the-way place; for instance, between heaped-up stones or in a hollow under the root of a tree, making it tolerably secure against wild animals. Even nourishment was sometimes given, in order to prolong the child's life in case anyone might possibly find it and take pity upon it.

As might be expected from men whose great business in life was war, everything connected therewith was carried to the greatest elaboration. The numerous illustrations of swords and of the various parts of swords in M. Du Chaillu's volumes are an interesting study. The most richly-carved and ornamented hilts and damascened blades are seen, while the scabbards and belts were quite in keeping. Axes and shields, and coats of mail, including even ring-mail, all were masterpieces of mechanical art. No wonder, then, that the sagas abound with the most graphic and even fond epithets for the great implement with which the Vikings did the work of their day and generation. After these chapters devoted to weapons, M. Du Chaillu naturally takes us to the war customs of the Norsemen, to their battle formations, and similar subjects. In connection with this subject, the remarkable rock-tracings found in Bohuslän, of which M. Du Chaillu gives illustrations, are of striking interest, especially when compared with the bas-relief from the temple of Medinet-Habou, in Egypt. Some of the points of similarity will strike the most casual observer, as will also the figures strongly resembling the camel, turtle, leopard, and other southern animals on the Norse tracings. M. Du Chaillu gives abundant illustrations of the ships of the Vikings, and has a chapter on their fleets, and another on the mode of warfare. One particularly interesting chapter is that which deals with trade and trading ships, and with the articles (richly illustrated) brought back to Scandinavia in these ships from abroad. The chapters on household arrangements ought to be popular, with their abundant illustrations of richly-carved panels and lintels, doors and chairs, and other household furniture. The various arrangements of the house are also brought out in numerous quotations, including questions of precedence, feasts, drinking bouts, and other such matters. The various chapters relating to

women, their dress and ornaments (including those beautiful bracteates of which M. Du Chaillu gives so many illustrations), and occupations, and their position in the social economy of the Vikings, are sure to interest, all the more that they show the great respect in which these rough warriors held the sex. We see in the sports and amusements in which the hardy Norsemen indulged many of the early forms of games which are now common among all English-speaking peoples ; while in the chapters on "Ídróttir" (a word hardly translatable, as it means exercises of all kinds, physical and mental) it will be learned that intellectual power was also understood and respected. Not the least remarkable feature of the Viking Age is its wonderful store of what—for lack of a more precise name—we must call literature. Thus, we have the "Hávamál" (the "Book of Proverbs" of the old Norsemen), with its many "wise saws" and shrewd hints as to the conduct of life. Here are a few examples of its wisdom :—

Thus is the love of women, whose hearts are false,
As riding on slippery ice with an unshod,
Wild, two-year-old, badly broken horse,
Or like cruising rudderless in a strong gale,
Or like the lame reindeer on thawing mountain sides.

Finely must talk and offer gifts
He who would win woman's love,
Praise the shape of the fair maiden,
He wins who wooes.

A man must not blame another
For what is many men's weakness ; for mighty love
Changes the sons of men from wise into fools.

Or again :—

An unwise man is awake all night
Worrying about everything ; he is weary
When the morning comes, all the woe is as it was.

An unwise man when he comes among people
Had best be silent ; no one knows
That he nothing knows, unless he talks too much.

Of course, it cannot be maintained that the "Hávamál" in its existing form belongs to the earliest Norse period.

The concluding chapters of M. Du Chaillu's volumes deal with some of the expeditions and deeds of great Vikings. They do not profess to give a continuous history of these expeditions ; rather the author's object seems to be to give examples of the method in which the Norsemen went to work, and of the wide area over which their roving extended. We have in these chapters the actual text descriptive of the early Norse expeditions to Greenland and the coast of North America by Eric the Red and his successors in the tenth and following centuries. These expeditions are often referred to. Here we have the story itself in all its details in the words of a storyteller almost contemporary ; for Rafn's great volume is accessible to few. The same can hardly be said, of course, of many of the sagas quoted by M. Du Chaillu, which, though in origin they may be very old, were not written down till long after the events, and in the meantime had probably received many additions. But he may fairly claim, as he does, that they, on the whole, represent the conditions of life of the period to which they refer. Severe historical criticism might reduce the antiquity both of many of the finds and many of the quotations which fill M. Du Chaillu's volumes ; but their value, as illustrative of the civilisation, character, and life of the early Vikings will remain the same—a value enhanced by the multitude of beautiful pictures, which alone ought to make the book attractive, and which alone are a worthy result of the eight years and a half which M. Du Chaillu has spent upon the work.—

Daily Telegraph.

REVIEWS.

LONGMANS' NEW ATLAS. Edited by G. C. CHISHOLM, F.R.G.S., &c.
12s. 6d. *London: Longmans, Green, and Co.*

THIS is a political and physical Atlas, with fifty-five maps and sixteen plates illustrating the ethnology and natural history of the world. The meteorological, ethnographical, geological, and botanical maps have been especially prepared for this Atlas by experts. The system of index numbers in the margin is useful to a careful reader, but it is of doubtful value for use in schools. The maps have been engraved and lithographed by Mr. Stanford, and it is furnished with a satisfactory index of places. The Atlas is a great advance upon any school atlases we have had in English. The maps are not over-crowded with names of places, and are vigorously drawn and coloured. The illustrations in the sixteen plates are somewhat rough; but we welcome this attempt to give a picture of the earth which is of value. We trust the publishers may have encouragement in so bold a venture.

PHILIP'S IMPERIAL ATLAS OF THE WORLD. Eighty Maps, with Indexes
to over 200,000 places. £8. *London and Liverpool: George
Philip and Son.*

THIS Atlas has just been published, and contains a large amount of valuable information. Twenty-two out of the eighty maps are devoted to details of Great Britain and Ireland and her Colonies. Sixteen maps are illustrative of geographical science, viz.: six orographical, nine physical, one geological, and contour maps of the Atlantic and Mediterranean. The maps are drawn to a large scale, and are clearly executed with considerable minuteness. India is represented by four sheets, Africa by six, and America (North and South) by sixteen. It is a handsome book, and is a satisfactory magazine for reference.

H. M. STANLEY, THE AFRICAN EXPLORER. By ARTHUR MONTEFIORE,
F.R.G.S. *London: S. W. Partridge and Co., N.D.* Pp. 160. Price
1s. 6d.

THE book before us gives a brief but very readable account of Mr. H. M. Stanley, from his birth at Denbigh in 1840 until his arrival at Bonalya on the 17th of August, 1888. We are informed that Mr. Stanley's baptismal name is John Rollant, now spelt Rolands. A sketch of his early life is given, but we have no means of testing its accuracy. We have taken some trouble to examine the accounts of Stanley's African exploits given in this book, and find them to be accurate and well balanced. The author rarely falls into such mistakes as one we find on page 147, where, in speaking of Emin Pasha, he says that in 1886 Dr. Junker, the well-known traveller, reached Wadelai, bearing letters and newspapers for the beleagured pasha, the first he had received for three years. The portrait of Mr. Stanley, which forms the frontispiece, is a remarkably good one, but the map is wretched. The author has acknowledged his obligations to Mr. Stanley's own works, but we think a line or two might have been spared to acknowledge the sources of his other information and of his illustrations.—*Scottish Geographical Magazine.*

PROCEEDINGS OF THE SOCIETY

FROM OCTOBER 1st, 1889, to DECEMBER 31st, 1889.

HUNDRED AND SIXTH MEETING

Of the Society, in the Memorial Hall, Wednesday, October 2nd, 1889, his lordship the BISHOP OF SALFORD in the chair.

Mr. J. T. ARLIDGE, M.D., addressed the members, and the members of the Statistical and other societies, "On the Effects of Manufacturing Processes in Relation to Health." (See pp. 305.)

The meeting was addressed by Dr. PANKHURST, Mr. MARSDEN, Mr. FOGG, and others, and questions were asked.

Dr. PANKHURST moved a vote of thanks to Dr. Arlidge, and Mr. F. J. FARADAY seconded the motion, which was carried unanimously.

Dr. ARLIDGE replied to the questions asked, and requested co-operation in the study of the subject, thanked the meeting for their attention, and moved a vote of thanks to the chairman, which was seconded and carried. The Bishop responded.

HUNDRED AND SEVENTH MEETING

Of the Society, held in the Library, Friday, October 11th, 1889, at 7-30 p.m., Mr. MARK STIRRUP, F.G.S., in the chair. The minutes of the following meetings were read and approved—June 26th (100th), 29th (101st), July 8th (102nd), 27th (103rd) August 9th (104th), 26th (105th), October 2nd (106th).

The election of the following members was announced :—

LIFE : Mr. William Hammers, J.P.

CORRESPONDING : Mr. J. F. Scott, Jun., Transvaal.

ORDINARY: Messrs. W. J. Burton, Samuel Butler, D. R. Calvert, J. Dean, Richard Done, James Edmondson, Councillor A. Fletcher, Henry Grimston, J. Dilworth Harrison, Councillor W. T. Heap, Councillor J. S. Higham, Rev. A. Holliday, Charles Hooper, Edward Inman, J. J. T. Jackson, William Johnson (in lieu of associate), Mrs. Johnson, F. W. Maxwell, Miss Morton, Thomas Nesbitt, Joseph Nuttall, Joseph Oldham, William Oldham, Joseph Pennington, George Perry, P. Lloyd Rees, Edward Rothwell, John Thompson, J.P., Henry Thorp, Charles Henry Stott, Thomas Winstanley.

ASSOCIATE—William Baker, John Bates, B.A., Thomas Batho, William Churchill, Jun., T. P. Cooper, Hugh Fullerton, N. H. Harris, Henry Holden, Charles Longworth, John Pollitt, Mrs. Provis, T. Richardson, A. Rushworth, W. A. Rushworth, Thomas Turnbull, Charles Wadsworth,

A large number of presentations of books, maps, &c., was reported to the meeting. (See Additions to Library, pp. 449.) Very hearty thanks to the respective donors were ordered to be sent by the secretary.

The following letters, in reply to letters of condolence formerly passed by the society, were read :—

From Mrs. John Slagg :

“39, Hertford Street, Mayfair.

“Mrs. Slagg returns thanks for kind sympathy.”

From Mr. H. J. Roby :

“Woodhill, Pendleton, 29th September, 1889.

Dear Sir,—I beg to acknowledge the resolution of the Council of the Manchester Geographical Society, which you have been so good as to communicate to me. Pray convey to the council my thanks for their kind words and this act of sympathy in my great loss.—Yours very faithfully. (Signed) H. J. ROBY.”

“Eli Sowerbutts, Esq.”

The SECRETARY then read an address to the members on “Recent Travels in Peru and Bolivia,” by the Chevalier H. Guillaume, Consul General for Peru at Southampton. (See pp. 315.) The address was illustrated with a large map very kindly lent by the writer.

Some discussion ensued upon the paper:

Mr. H. YULE OLDHAM then read copious extracts from a paper, by Mr. R. E. Dennett, on the “Manners and Customs of the Congo Natives, and Notes of Travel on the Lower Congo.”

The Reports of the Delegates to the meetings of the Yorkshire Mechanics’ Institutes Union, held at Halifax, the British Association, held at Newcastle-on-Tyne, and the International Geographical Congress, held at Paris, were presented.

A conversation ensued, and the meeting broke up at a late hour. Thanks to the chairman closed the meeting.

REPORT OF THE DELEGATE

to the Annual Meeting of the Yorkshire Mechanics’ Institutes Union, held at Halifax, June 19th, 1889.

The Conference took place in the Hall of the Mechanics’ Institute. Sir EDWARD BAINES presided, and addressed the delegates.

The official business was then dealt with.

Two items of interest are obvious: (1) The number of Institutes is increasing, being in 1888, 274, with an aggregate number of members of 58,100. (2) The great usefulness of the Village Library during the year 1888, the large number of 33,950 books having been issued.

The Examinations of the Union are important; but it is singular that there is not a single one in Geography, either general or commercial.

The Secretary of the Union attended 194 meetings during the year (including Lectures, Conferences, &c.), which seems to put a great strain upon that officer.

Mr. S. SMITH, M.P., addressed the Conference on the subject of “Continuation Schools.” The address was well received, and a brisk discussion ensued.

Mr. REUSS spoke to the Conference on “Home Arts and Industries; or, Cottage Industries in Relation to the Work of the Union.” In the discussion it was interesting to find how much was being done by the smaller institutes in this direction.

At the evening meeting the Earl of CARLISLE occupied the Chair, and gave an address of great value on "Art."

The next day the Members had an excursion to the Widdop Reservoir of the Halifax Corporation, and to Hardcastle Craggs.

This journey from Hebden Bridge is a remarkable one; and the delegate trusts our members may have an opportunity of seeing this magnificent district.

The delegates were received with the usual splendid hospitality of Yorkshiremen, and left Halifax with very kindly feelings towards their hosts.

HALIFAX WATER WORKS.

Councillor FOSTER kindly supplied the following note on the Water Works, which will have interest for our members:—

The Waterworks derive their supply from five separate valleys: The Hebble, Luddenden, Widdop, Greave, Walshaw Dean. The Ogden Reservoir is at the head of the Hebble stream, holds 221,806,000 gallons, 990,000 of which are sent down the stream daily. The conduit passes through Mixenden to Ramsden Wood, thence to Halifax. Mixenden Reservoir holds 106,121,000 gallons. Ramsden Wood Reservoir holds 11,700,006 gallons. The Service Reservoirs of the town are—

	A.	R.	P.	DEPTH.	GALLONS.
Albert	7	2	25	14½ feet	27,501,143
Victoria	2	3	30	14½ "	12,283,953
Royles Head	1	1	36	22 "	5,985,000
Hanson Lane	0	3	37	11 "	3,290,454
Gibbit Hill	—			—	34,207

STORAGE.

	A.	R.	P.	DEPTH.	GALLONS.
Widdop	93	0	29	65 feet	640,510,771
Warley Moor	67	3	30	30 "	193,250,587
Dean Head	9	2	33	54¾ "	59,142,694
"	9	2	37	60 "	63,011,690
Castle Carr	1	1	8	19 "	4,500,000
Ogden	35	0	32	66 "	221,806,174
Mixenden	21	3	5	30 "	106,121,782
Ramsden Wood	3	0	27	22 "	11,699,751

The compensation water from the Luddenden stream is 1,440,000 gallons per day mostly from Warley Moor Reservoir. Compensation from Widdop, 1,620,000 gallons. The Walshaw Dean Reservoirs yet to make are three, equal to Widdop. The water from all the five Valleys is brought to Ramsden Wood. The whole line of the conduit resembles a tree, the main trunk being the conduit from Ramsden Wood to Halifax, the branches to Ogden, &c., &c.

The drainage area is chiefly moorland or high mountain pasture, and of the millstone grit formation. The Dean Head and Castle Carr Reservoirs are near a beautiful mansion, and they are very ornamental, and have a splendid fountain, and also artificial waterfalls. Mr. Bateman was engineer.

REPORT OF THE DELEGATE TO THE MEETING OF THE BRITISH ASSOCIATION AT NEWCASTLE-ON-TYNE.

The Meeting of the British Association was this year held at Newcastle-on-Tyne. A large number of members were present. The papers were generally up to a fair level of quality; the meeting was a business meeting, and the whole tone was influenced by the President's address on Museums.

The members were received with great kindness and goodwill. *Receptions, Conversaciones, and Meetings* were frequent, and the excursions covered a good part of the north country, the most striking ones being those to the Works of the Armstrong and Palmer Companies, the Chemical Works, and the River Tyne itself.

Three excellent Guide Books* were prepared for the members and hand-guides to the places to be visited by excursionists.

Many papers were read in sections—A (Mathematical), C (Geology), D (Biology), F (Economics), and in H (Anthropology)—of great interest from a geographical point of view, but it was quite impossible from the scattering of the place of meeting to hear many others than those in our own section E, Geography.

It would be a good thing when several papers are to be read on one place, as on the Geography, Geology, and Natural History of an island, if all these papers could be grouped and taken together. As it is, one perhaps hears the least interesting of the set. Probably it is difficult to do this, but it would be more profitable to the members of the Association.

In the Geographical section, which was presided over by Col. Sir F. de Winton, K.C.M.G., the papers were not very startling, but were all good.

The president, in his address, followed the lines of the previous occupant of the chair, and gave completion to his remarks on Commercial Geography. The address will be found herewith. (See pp. 412.)

The following papers were of interest: Sir R. Biddulph, G.C.M.G., "Cyprus"; Captain Thys, "The Congo Railway"; Rev. R. P. Ashe, "Uganda"; H. E. Governor Moloney, "Yoruba"; Mr. J. G. Colmer, C.M.G., "The Canadian N. W. Territories"; Mr. R. Gundry, "China"; Captain Lugard, "Nyassaland"; Mr. J. Batalha Reis, Several papers on "Portuguese Geographical Discovery, &c."; Mr. J. Rankin, "The Mouths of the Zambesi"; Dr. Lumholtz, "Central Queensland"; Mr. A. Cooke, "British North Borneo"; Chevalier Guillaume, "Explorations in Peru and Bolivia"; Mr. H. M. Sullivan, "Siberia and Trade"; Dr. F. Nansen, "Greenland."

Dr. Nansen's papers on Greenland were the event of the section, and perhaps of the meeting.

An exhibition of pictures of Greenland, was shown in the ante-room by Mr. Reis Carstensen, the sledge and snow shoes of Dr. Nansen; photographs of Greenland and of Siberia; and Mr. Clayden's models to explain the action of the wind on ocean currents, which attracted much interest.

Mr. Basil Thomson, "New Guinea and Neighbouring Islands"; Mr. T. Bent, "The Bahrein Islands"; Dr. Guppy, "Eastern Java."

The Report of the British Association will give abstracts of these and some other shorter papers of value.

The section was well attended throughout, and lively discussion occasionally arose.

The delegates held two meetings, which were well attended. The most interesting outcome of the meetings of delegates was the ideas relating to taking the erratic blocks of the country, the note of historic (prehistoric more particularly) remains, the geological photography of the country, and the notice to be taken of the erosive action of the sea on the coasts.

I append a few out of the list of the Committees, appointed for special purposes to report at the next meeting at Leeds.

The co-operation by any of our members will be heartily welcomed by the Secretaries of the various Committees.†

* These are now in the Library.

† See Mr. Jeff's letter on Geological Photographs.

APPENDIX TO REPORT OF DELEGATE TO THE BRITISH ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

The following Committees, having a relation to Geography, were appointed by the General Committee at the Newcastle-upon-Tyne Meeting, in September, 1889.

I.—RECEIVING GRANTS OF MONEY.

Subject for Investigation or Purpose.	Members of the Committee.	Grants.
The Volcanic and Seismological Phenomena of Japan.	<i>Chairman</i> —Sir W. Thomson. <i>Secretary</i> —Professor J. Milne. Professor W. G. Adams, Mr. J. T. Bottomley, and Professor A. H. Green.	£ 75
Recording the position, height above the sea, lithological characters, size, and origin of the Erratic Blocks of England, Wales, and Ireland, reporting other matters of interest connected with the same, and taking measures for their preservation.	<i>Chairman</i> —Professor J. Prestwich. <i>Secretary</i> —Dr. H. W. Crosskey. Professors W. Boyd Dawkins, T. McK. Hughes, and T. G. Bonney and Messrs. C. E. De Rance, D. Mackintosh, W. Pengelly, J. Plant, and R. H. Tiddeman.	10
The Volcanic Phenomena of Vesuvius and its neighbourhood.	<i>Chairman</i> —Mr. H. Bauerman. <i>Secretary</i> —Dr. H. J. Johnston-Lavis. Messrs. F. W. Rudler, and J. J. H. Teall.	20
The circulation of the underground waters in the Permeable Formations of England, and the quality and quantity of the waters supplied to various towns and districts from these formations.	<i>Chairman</i> —Professor E. Hull. <i>Secretary</i> —Mr. C. E. De Rance. Dr. H. W. Crosskey, Sir D. Galton, Professor J. Prestwich, and Messrs. J. Glaisher, E. B. Marten, G. H. Morton, J. Parker, W. Pengelly, J. Plant, I. Roberts, C. Fox-Strangways, T. S. Stooke, G. J. Symons, W. Topley, Tylden-Wright, E. Whethered, and W. Whitaker.	5
To carry on excavations at Oldbury Hill near Ightham in order to ascertain the existence or otherwise of Rock Shelters at that spot.	<i>Chairman</i> —Dr. J. Evans. <i>Secretary</i> —Mr. B. Harrison. Professors Prestwich and H. G. Seeley.	15
The collection, preservation, and systematic registration of Photographs of Geological interest.	<i>Chairman</i> —Professor J. Geikie. <i>Secretary</i> —Mr. O. W. Jeffs. Professors Bonney and Boyd-Dawkins, and Messrs. S. A. Adamson, A. S. Reid, and W. Gray.	10

Subjects for Investigation or Purpose.	Members of the Committee.	Grants.
For taking steps to establish a Botanical Station at Peradeniya, Ceylon.	<i>Chairman</i> —Professor M. Foster. <i>Secretary</i> —Professor F. O. Bower, Professor Bayley Balfour, Mr. Thiselton-Dyer, Dr. Trimen, Professor Marshall Ward, Mr. Carruthers, and Professor Hartog.	£ 50
To report on the present state of our knowledge of the Zoology and Botany of the West Indian Islands, and to take steps to investigate ascertained deficiencies in the Fauna and Flora.	<i>Chairman</i> —Professor Flower. <i>Secretary</i> —Mr. D. Morris. Mr. Carruthers, Dr. Sclater, Mr. Thiselton-Dyer, Dr. Sharp, Mr. F. Du Cane Godman, Professor Newton, Dr. A. Günther, and Colonel Fielden.	100
The best method of ascertaining and measuring variations in the Value of the Monetary Standard.	<i>Chairman</i> —Dr. Giffen. <i>Secretary</i> —Prof. F. Y. Edgeworth. Mr. S. Bourne, Professor H. S. Foxwell, Professor Alfred Marshall, Mr. J. B. Martin, Professor J. S. Nicholson, Mr. R. H. Inglis Palgrave, and Professor H. Sidgwick.	10
Inquiring and reporting as to the statistical data available for determining the amount of the Precious Metals in use as Money in the principal countries of the world, the chief forms in which the money is employed, and the amount annually used in the arts.	<i>Chairman</i> —Dr. Giffen. <i>Secretary</i> —Prof. F. Y. Edgeworth. Mr. S. Bourne, Professor H. S. Foxwell, Professor Alfred Marshall, Mr. J. B. Martin, Professor J. S. Nicholson, Mr. R. H. Inglis Palgrave, and Professor H. Sidgwick.	15
The action of Waves and Currents on the Beds and Foreshores of Estuaries by means of working models.	<i>Chairman</i> —Sir J. N. Douglass. <i>Secretary</i> —Professor W. C. Unwin. Professor Osborne Reynolds and Messrs. W. Topley, E. Leader Williams, W. Shelford, G. F. Deacon, A. R. Hunt, W. H. Wheeler, and W. Anderson.	150
The physical characters, languages, and industrial and social condition of the North-Western Tribes of the Dominion of Canada.	<i>Chairman</i> —Dr. E. B. Tylor. <i>Secretary</i> —Mr. Bloxam. Sir Daniel Wilson, Dr. G. M. Dawson, General Sir H. Lefroy, and Mr. R. G. Halliburton.	100
The effects of different occupations and employments on the Physical Development of the Human Body.	<i>Chairman</i> —Dr. Beddoe. <i>Secretary</i> —Mr. Bloxam. General Pitt-Rivers, Sir Rawson Rawson, Dr. H. Muirhead, Mr. C. Roberts, Dr. G. W. Hambleton, Mr. F. W. Rudler, and Drs. J. G. Garson, J. Rutherford, and C. S. Jeaffreson.	20
Editing a new edition of "Anthropological Notes and Queries."	<i>Chairman</i> —General Pitt-Rivers. <i>Secretary</i> —Dr. Garson. Dr. Beddoe, Professor Flower, Mr. Francis Galton, and Dr. E. B. Tylor.	50

Subjects for Investigation or Purpose.	Members of the Committee.	Grants.
Calculating the Anthropological Measurements taken in the Anthropometric Laboratory.	<i>Chairman</i> —General Pitt-Rivers. <i>Secretary</i> —Dr. Garson. Mr. Bloxam.	£ 10
The geography and the habits, customs and physical characters of the Nomad Tribes of Asia Minor and Northern Persia, and to excavate on sites of ancient occupation.	<i>Chairman</i> —Dr. Garson. <i>Secretary</i> —Mr. Bent, Messrs. H. W. Bates, Bloxam and J. Stuart Glennie, Sir Frederic Goldsmid, and Messrs. Pengelly and Rudler.	25
The habits, customs, physical characteristics and religions of the Natives of India.	<i>Chairman</i> —Sir William Turner. <i>Secretary</i> —Mr. Bloxam. Professor Flower, Dr. E. B. Tylor and Mr. H. H. Risley.	10
For clerical assistance in drawing up the Annual Report of the Corresponding Societies' Committee.	<i>Chairman</i> —Mr. Francis Galton, <i>Secretary</i> —Professor R. Meldola. Professor A. W. Williamson, Sir Douglas Galton, Professor Boyd Dawkins, Sir Rawson Rawson, Dr. J. G. Garson, Dr. John Evans, Mr. J. Hopkinson, Mr. W. Whitaker, Mr. G. J. Symons, General Pitt-Rivers, Mr. W. Topley, and Professor Bonney.	20

II.—NOT RECEIVING GRANTS OF MONEY.

Subjects for Investigation or Purpose.	Members of the Committee.
Considering the advisability and possibility of establishing in other parts of the country observations upon the prevalence of Earth Tremors similar to those now being made in Durham in connection with coal-mine explosions.	<i>Chairman</i> —Mr. G. J. Symons. <i>Secretary</i> —Professor Lebour. Sir F. J. Bramwell, Mr. E. A. Cowper, Professor G. H. Darwin, Professor Ewing, Mr. Isaac Roberts, Mr. Thomas Gray, Dr. John Evans, Professors Prestwich, Hull, Meldola, and Judd, Mr. M. Walton Brown, and Mr. J. Glaisher.
Seasonal variations in the temperatures of Lakes, Rivers, and Estuaries in various parts of the United Kingdom in coöperation with the local societies represented on the Association.	<i>Chairman</i> —Mr. John Murray. <i>Secretary</i> —Dr. H. R. Mill. Professor Chrystal, Dr. A. Buchan, Rev. C. J. Steward, the Hon. R. Abercromby, Mr. J. Y. Buchanan, Mr. David Cunningham, Mr. Isaac Roberts, Professor Fitzgerald, Mr. Sorby, and Mr. Willis Bund.
Coöperating with the Scottish Meteorological Society in making Meteorological Observations on Ben Nevis.	<i>Chairman</i> —Hon. R. Abercromby. <i>Secretary</i> —Professor Crum Brown. Messrs. Milne-Home, John Murray, and Buchan and Lord McLaren.
Reporting upon the "Manure Gravels" of Wexford.	<i>Chairman</i> —Mr. R. Etheridge. <i>Secretary</i> —Mr. A. Bell. Dr. H. Woodward.

Subject for Investigation or Purpose.	Members of the Committee.
An ancient Sea-beach near Bridlington.	<p><i>Chairman</i>—Mr. J. W. Davis. <i>Secretary</i>—Mr. G. W. Lamplugh. Mr. W. Cash, Dr. H. Hicks, Mr. Clement Reid, Dr. H. Woodward, and Mr. T. Boynton.</p>
The rate of Erosion of the Sea-coasts of England and Wales, and the influence of the artificial abstraction of shingle or other material in that action.	<p><i>Chairman</i>—Mr. R. B. Grantham. <i>Secretaries</i>—Messrs. C. E. De Rance and W. Topley. Messrs. J. B. Redman, W. Whitaker, and J. W. Woodall, Maj.-Gen. Sir A. Clarke, Admiral Sir E. Ommanney, Sir J. N. Douglass, Capt. Sir G. Nares, Capt. J. Parsons, Capt. W. J. L. Wharton, Professor J. Prestwich, and Messrs. E. Easton, J. S. Valentine, and L. F. Vernon Harcourt.</p>
Reporting on the Tertiary and Secondary Plants of the United Kingdom, and on the higher Eocene beds of the Isle of Wight.	<p><i>Chairman</i>—Dr. H. Woodward. <i>Secretary</i>—Mr. J. S. Gardner. Professor J. W. Judd and Messrs. W. Carruthers and C. Reid.</p>
To consider the best methods for the registration of all Type Specimens of Fossils in the British Isles, and to report on the same.	<p><i>Chairman</i>—Dr. Woodward. <i>Secretary</i>—Mr. J. E. Marr. Messrs. R. Etheridge, G. F. Whidborne, and R. Kidston.</p>
To make a digest of the observations on the Migration of Birds at Lighthouses and Light-vessels, which have been carried on by the Migration Committee of the British Association, and to report upon the same at Leeds.	<p><i>Chairman</i>—Professor Newton. <i>Secretary</i>—Mr. John Cordeaux. Messrs. John A. Harvey-Brown, R. M. Barington and W. E. Clarke and the Rev. E. P. Knubley.</p>
Collecting information as to the Disappearance of Native Plants from their local habitats.	<p><i>Chairman</i>—Mr. A. W. Wills. <i>Secretary</i>—Professor W. Hillhouse. Messrs. E. W. Badger and George Claridge Druce.</p>
The Invertebrate Fauna and Cryptogamic Flora of the fresh waters of the British Isles.	<p><i>Chairman</i>—Canon A. Norman. <i>Secretary</i>—Professor J. C. Ewart. Professors I. B. Balfour, J. Geikie, A. C. Haddon, W. R. McNab, W. J. Sollas, and Lapworth, Dr. H. Scott, and Mr. F. E. Beddard.</p>
The teaching of Science in elementary schools. (Geographical teaching is included in this subject.)	<p><i>Chairman</i>—Dr. J. H. Gladstone. <i>Secretary</i>—Professor Armstrong. Mr. S. Bourne, Miss Becker, Sir J. Lubbock, Dr. Crosskey, Sir R. Temple, Sir H. E. Roscoe, Mr. J. Heywood, and Professor N. Story Maskelyne.</p>
Ascertaining and recording the localities in the British Islands in which evidences of the existence of Prehistoric Inhabitants of the country are found.	<p><i>Chairman</i>—Sir John Lubbock. <i>Secretary</i>—Mr. J. W. Davis. Dr. J. Evans, Professor Boyd-Dawkins, Dr. R. Munro, Messrs. Pengelly and Hicks, Professor Meldola, and Dr. Muirhead.</p>

The following Resolutions referred to the Council for consideration, and action if desirable.

That the Council be recommended to urge upon the Government of India—

- (1) The desirability of procuring anthropometric measurements of a representative series of tribes and castes in the Punjab, Bombay, Madras, the Central Provinces, and Assam ; it being understood that trained observers are already available.
-) Also that in the Enumerators' Schedule of the Census of 1891 provision should be made for recording not only the caste to which a man belongs, but also the endogamous and exogamous groups within the caste of which he is a member ; it being believed that this was actually done in the last Census of the Punjab, that it will not add to the cost of the Census, and that it will materially enhance its accuracy and scientific value.

That the Council be requested to urge upon the Canadian Government the desirability of again making a supplementary grant to the Committee appointed for the purpose of investigating the habits, costumes, and physical characteristics of the North-Western tribes of the Dominion of Canada, in view of the urgent necessity of pushing forward operations with as much rapidity as possible in consequence of the anticipated speedy extinction of many of the native tribes.

[CIRCULAR NO. 1.]

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Committee on Geological Photographs : Professor James Geikie, F.R.S. (Chairman) ; S. A. Adamson, F.G.S. ; Professor T. G. Bonney, F.R.S. ; Professor W. Boyd Dawkins, F.R.S. ; William Gray, M.R.I.A. ; Arthur S. Reid, M.A., F.G.S. ; Osmund W. Jeffs (Secretary).

"12, Queen's Road, Rock Ferry, Cheshire, November 1st, 1889.

"Sir,—At the meeting of the British Association held at Newcastle, in September last, a Committee was formed (constituted as above) to arrange for the collection, preservation, and systematic registration of photographs of geological interest in the United Kingdom. I am desirous to invite your valuable aid and co-operation in furthering the work of the committee, by supplying me with the following or other information, viz. : (1) Lists and details of photographs taken, illustrating localities and sections. (2) Names of local societies, or persons, who may be willing to further the objects of the committee in their own district. (3) Particulars of new localities, sections, boulders, or other features which it may be desirable to have photographed. The committee will also be glad to receive a copy of the print from each negative, which will be exhibited at the succeeding meetings of the Association, and afterwards preserved for reference. It is thus hoped to form, eventually, a national collection of photographic views illustrating the geology of our country, and deposited in a centre where the collection will be available for purposes of study and comparison. Photographs officially received will be numbered and registered, and a detailed list published in the report of the committee, showing where the photographs may be obtained. In order to secure uniformity of action, and as a guide to those who are willing to assist in the scheme, a circular of instructions has been drawn up, copies of which will be supplied on application to any officers of your Society, or other persons who may desire to have them. Trusting to be favoured with your active co-operation, I am, your obedient servant,

"OSMUND W. JEFFS, Secretary to the Committee."

ADDRESS TO THE GEOGRAPHICAL SECTION OF THE BRITISH ASSOCIATION.

BY SIR FRANCIS DE WINTON, K.C.M.G., F.R.G.S., PRESIDENT OF THE SECTION.

GEOGRAPHY has not inaptly been defined as "the science of distribution," and from whatever aspect we view it, whether from a large and comprehensive basis embracing all the conditions which surround it as a science, or from the narrower limits of simple physiography, we find certain well-defined principles, or one may term them natural laws, pervading everywhere, whose actions have, through their influences on the past, created the present, and according to the uses we now put them must largely govern the future.

The formation of our globe, unfolded to our vision by scientific discovery, brings us face to face with nature in all her awful grandeur; and we learn how, under a beneficial and all-wise Providence, this world has been fashioned and made for the use of man during periods of time almost beyond man's calculations: and in the history of man upon earth—a mere drop in this ocean of time—we read of the rise and fall of nations, of great wars, of the discoveries of new routes (so ably described by my friend and talented predecessor in the address delivered by him in this last year), and we see what large and important developments have taken place as regards the commerce and trade of the world by the effect of these influences; and then, turning to more recent days, we enter upon the discovery of steam, and its application as a motive power—a discovery which has given rise to extraordinary changes—changes by which the whole trade of the world and its industries have been stimulated and promoted. Add to this the inventions in electricity, by which almost instantaneous communication has been established to all parts of the globe, and we may well cease to wonder at the increase that has been manifested in what may be termed the motive power of the world, and the development of its larger activities.

Still the natural laws which govern this globe, in their relation to the science of geography, remain the same. It matters not how rapidly you travel from the pole to the equator, you will freeze at the one and perspire at the other; and while passing through the different zones of temperature lying between these regions—the frigid, temperate, and torrid zones—you will find each with their own products, varying with climate, soil, and peculiarity of position, and these variations pervade the whole realm of nature. Take man as an example: with all his power of brain and reason, he is largely subject to his environment. Look at the toiling millions of the temperate zone, and the enormous activity they display, both mental and physical. Note their colour, form, nervous development, and then pass into the tropics, and the whole creature is changed; he is different in colour, and displays none of the energy or brain power of the white species of his kind. Why is this? It is chiefly due to the environment in which the creature is living.

The effect of climate upon race is somewhat remarkably illustrated in recent times by noticing the physique and nerve power of the present race of Americans. The wonderful tide of emigration which has raised them to being a nation of 60,000,000 people may have exercised certain influences as regards this change; but there are many true Americans still in existence. Two hundred years ago they were the same race as ourselves, but the difference between us now is marked. The climate of America has given them an individual stamp, and a perceptible difference in outward semblance has shown itself even in this short space of time.

Similar changes are manifested throughout the whole animal and vegetable kingdom ; and while the geologist, zoologist, botanist, ethnologist, and entomologist, each and all are separate branches of science, yet each and all have a common ground in geography, and its application to the shape and form of land and sea ; to the wrinkled folds of the earth's surface which we call mountains and valleys ; to the mighty ocean with its currents of air and water, and the influences they exert ; to the huge inland seas and lakes ; to the great rivers and small streams ; to the endless varieties in the animal and vegetable kingdoms ; and we find these great elements of nature contributing each in its own sphere to questions relating to the commerce of the world and the development of new countries.

In this brief introduction to my paper I have designedly, though very briefly, drawn your attention to the science of applied geography, before passing in review the most recent explorations and discoveries of the present day ; and while doing this, I shall endeavour to draw attention to the great necessity for a more thorough study of this science, and the influences it exerts upon trade and commerce, as we gain a better knowledge of the products of one country and the industries of another, as well as the importance of such knowledge to the great manufacturing centres of this nation as new countries are discovered and developed.

It must be remembered we no longer enjoy a monopoly of trade. Other nations are exhibiting large commercial activities ; and if we desire a continuance of the trade of Great Britain, we must put our shoulders to the wheel with the same energy and creative power that have produced such astonishing results during the present century.

In the paper to which I have already alluded it was clearly shown how largely the rise and fall of the great emporiums of commerce in past centuries were influenced by the struggle for the Eastern trade. This struggle is still going on. The Russians in Central Asia are steadily advancing as each year goes by, and developing that system of absorption which has characterised their policy, especially in that region. Central Asia is the chosen field of their explorers, and the recent decease of General Prejevalsky has been a great loss to the scientific world. A full account of his remarkable discoveries and explorations appeared in the "*Proceedings*" of the Royal Geographical Society.

The principal work accomplished by the latest Russian explorers, Messrs. Grombchevski, Mr. Lidsky, and Mr. Grum-Grijmailo, in Central Asia, have been in the region of the Pamir, and from thence across the Hindu Kush into Hunza. Also in Eastern Bokara and in the upper waters of the Yarkand River, the Kilik Pass, and Kanjat. In the prosecution of these researches, which are all dangerously near our Indian frontier, very full reports are made, more especially as regards trade and commerce ; and there is no doubt, since the completion of the Transcaspian railway to Samarcand, a great impetus has been given to Russian trade in Central Asia, even extending, by well-known routes, as far as the north-west provinces of China, where Russian goods are now found entering into competition with those of English manufacture.

By means of this railway, right into the heart of Asia, Russia has obtained the trade of a vast area, which formerly passed entirely through British hands. Both politically and commercially she is our rival in the East, and the question which nation is to be supreme must come sooner or later.

There is no more interesting country in the world than China. Her teeming and industrial population, her large mercantile centres, the geographical situation of her territory, her undeveloped mineral wealth, her individuality, and the magnitude of her trade with this country, all combine to invest her with a peculiar importance

as regards our mercantile community. Coal has been discovered in all the seventeen provinces of the Chinese Empire, but the passive resistance offered by her rulers and her peoples to all attempts by foreign nations to obtain a footing in the interior have prevented any development of her resources. The day, however, cannot be far distant when railways, some of which are already projected, will open up the interior of China and make her better known; but we should be unworthy children of our forefathers if we permit the trade of this rich and widely-peopled country to pass from our hands, either from a want of energy, or from a departure from those principles of trade and commerce whose foundations are built upon the rocks of integrity and honest dealing. Nothing marks the individuality of the Chinese more than that, wherever you meet him, whatever his surroundings may be, he is John Chinaman still; he never adopts the dress, manners, or customs of other nations, but he remains constant to the pigtail, the quaint dress, and the umbrella, and if established in communities, you will find him with his joss-house, food, theatre, and his refreshment-places just as if he were in China.

Our knowledge of the latest acquisition in the East, Burmah, has been largely increased during the past eighteen months. Important surveys in North-Eastern Burmah by Colonel Woodthorpe, R.E., and Mr. Ogle, have opened up an area of about 1,500 square miles; and the fact of practicable routes between Assam and Burmah, *viâ* the Palka Pass, is now established. Burmah, with its large and intelligent population (numbering about 4,000,000), with its valuable minerals and precious stones, with its tropical products, is well worthy of the attention of the merchant adventurer; and as our knowledge of the physiography of the country is rapidly increasing, a study of its applied geography is strongly recommended to the student.

In our own territory of British India large and important surveys have been carried on under the able direction of Colonel Thuillier. These surveys are conducted in what is called the protected region; but very interesting additions, especially to the merchant, are made in the outlying territories bordering upon our Indian Empire, where no white man could go, by the employment of intelligent natives especially trained for the purpose. The information obtained by these men may be very profitably studied.

These Central Asian problems are full of deep significance to those desirous of developing and retaining the supremacy of the trade of this Empire in those regions; and I am happy to state that papers full of interest on these subjects will be presented to you during this meeting.

Turning to the northern parts of Asia, I feel some diffidence in speaking before a Newcastle audience on the subject of Siberia, for through your own townsmen, and Captain Wiggins, you are well acquainted with these regions. The exertions made by Captain Wiggins, and those connected with him in this enterprise, should receive the highest commendation; and that they have been so far successful is a matter for rejoicing. At the same time, I cannot but think that Russia, continuing the policy she has so steadily pursued for some years past, against the commercial development of Great Britain, would not object to the employment of British capital in opening up trade in her outlying dominions; for that trade, once fairly established on good business lines, would be absorbed on behalf of her own manufacturers. I do not attach any blame to Russia in this matter, but I am of opinion that more profits are to be gained when trade follows the flag, for then British enterprise and money reap more certain reward. If the energy, talent, and perseverance which have been exhibited by Captain Wiggins and his partners had been utilised in the development of some of our own territories, rather than in the territory of another nation, I feel sure they would command that success to which they are so justly entitled.

From the consideration of Siberia and the Northern Seas it is not a far step to Greenland, whose icy regions and eternal snows have been crossed for the first time in our history. The hero of this exploit, Dr. Fridtjof Nansen, is a native of Norway, and the exploration which he has so recently conducted to a successful issue was rightly alluded to by the President of the Royal Geographical Society, in his annual address, as the most conspicuous achievement of the year.

Though young in years Dr. Nansen proved himself to be a leader of men, and the account of his adventures will be found to be full of interest. The results of his expedition deal rather with the world of science than with commerce, as his discovery proved Greenland to be nothing more or less than a continent whose interior is a huge region of ice and snow. It, however, presents a most interesting study to those desirous of advancing our knowledge of glaciers and the glacial period. Dr. Nansen's description of this immense mass of frozen snow, forcing its way coastwards from the higher plateaus of the interior, by sheer weight and pressure, grinding, crushing, resistless in its slow but ever-moving power, gives one a faint idea of how the hills and valleys of the world were formed when, in remote periods of time, they too were under glacial influences.

Crossing from Greenland to North America, we still find ourselves in regions where ice and snow hold undisputed sway for a considerable portion of the year. The Canadian Government, with commendable activity, keep pushing forward their surveys into what is known as the Old Hudson Bay Territory. The Mackenzie River has been found to be a far larger body of water than formerly supposed. More accurate surveys as regards the size of some of the great lakes of those regions are being made, and our knowledge of the climate and the isothermal variations of British North America is each year increasing.

Petroleum has been discovered, and, as the geological surveys advance, other discoveries of an important nature may reasonably be anticipated. I have been told of the existence of a huge bed of porous sandstone, saturated with mineral oil, which burns like coal.

Moving southwards, we pass through the prairie-lands of the North-West of Canada, traversed by the Canadian Pacific Railway. These rich lands are being rapidly developed, and should form a happy home for some of our surplus population. Colonisation is a subject full of geographical considerations, but it demands a special paper, and I have neither space nor time to introduce it into this address. At the western edge of these prairie-lands are the Rocky Mountains, in whose foot-hills are now being reared large herds of cattle and horses, as well as flocks of sheep. Some cattle from these fertile regions were shipped last year to the English market, and no doubt a regular trade will soon follow this experiment.

Crossing the Rockies in a westward direction, you come to the Selkirk Range, then to the Gold Mountains, and lastly to the Cascades, whose wooded rocky sides plunge into the Pacific. Constant explorations are being carried on through these mountain ranges, chiefly in researches after gold and other precious metals, and our knowledge of their physiography is rapidly increasing. The Rev. Mr. Spottiswood Green, in an interesting paper concerning these regions, tells us something of the configuration of the Selkirk Range, which offers alike to the mineralogist, sportsman, and Alpine explorer a field of great interest.

Continuing southward, we pass through the fertile plains and valleys of California, whose large industries in grape and orange culture are being fostered and developed. And from California you enter into Mexico, whose wonderful mineral resources are receiving a new impetus by the construction of railways, 4,700 miles of which are now open to traffic. These railways will not only facilitate the transport

of the wealth of Mexico from the coast to the sea, but they tend also to promote law and order among its restless and lawless population.

As law and good government are established, so will trade and commerce and the natural riches of the country be promoted and encouraged.

Crossing over to South America, we find considerable progress in commercial activity, chiefly due to the increased means of communication.

In the smaller republics upwards of 1,500 miles of railway have been recently constructed; while in the larger states, Brazil has 6,000 miles; Peru, 3,000; Chili, 1,630; and the Argentine Republic, 4,700; making a grand total in South America of nearly 17,000 miles of railways. This allusion to railways may not be considered as bearing on the science of geography; but railways are very important factors as regards the commerce and trade of the world, and by the facilities they afford they largely increase the power of exploration.

The southern portion of South America has been described by those who have visited and explored its savannahs and prairie-lands as possessing one of the richest grazing-lands of the world, and its development is only a question of time. In its present condition it offers a very interesting field of research to the explorer.

Time does not permit us to dwell long on the islands of the Pacific. Recent events concerning Samoa are fresh in your memories; and while some of these islands have developed commercially, it is when they lie in the great ocean tracks of the world that their real importance is manifested. Take, for example, the island of St. Vincent, of the Cape Verde group. It is nothing but a barren rock, without any produce whatever; all its water has to be brought from a neighbouring island; yet it pays a large revenue to the Portuguese Government simply for coal dues, for it has a good harbour, and lies directly in the line between Great Britain and the principal ports of South America; it has, therefore, become a most important coaling station.

From the isles of the Pacific it is but a step to Australasia, with its six great colonies of Queensland, Victoria, New South Wales, South Australia, Western Australia, Tasmania, to which may be added New Zealand. Virgin fields untrodden by the foot of white man are still awaiting the explorer to yield up their treasures to the science of applied geography; and when the marvellous progress that has been made in a few short years by our Australian Colonies is weighed and considered, and as its vast interior is opened by exploration, and its mineral resources are developed, who could venture to predict the future that lies before it?

There are now nearly 11,000 miles of railway in operation, and many more miles are in course of construction throughout these various colonies—a sure and certain indication of their energy, wealth, material prosperity, and progress. Geographically speaking, some are not without their troubles. Take Queensland, for instance. Her territory runs north and south for nearly 1,500 miles, and lies both in the temperate and tropic zones. The Governments who during past years have administered her affairs have experienced some difficulties whilst endeavouring to reconcile the conflicting interests which arise out of her geographical position.

Laws relating to labour and capital in a temperate zone are not always in conformity with the industries and requirements of a tropical temperature, in which the white man is obliged to employ labour suitable to the climate. Hence we find a numerous section of the inhabitants of the northern part of the colony agitating in favour of separation. Australia has large coal measures, and abounds in precious metals as yet hardly developed.

Attached to Australia are the great and lesser islands forming the Australasian archipelago. The most important of these is New Guinea, and quite recently a successful exploration of its highest mountain range has been accomplished by the

present administrator, Mr. Macgregor, who reached an elevation of about 14,000 feet. A very interesting paper was read before the Royal Geographical Society by Mr. Paul Thomson concerning the D'Entrecasteaux and Louisade groups, adjacent to New Guinea; and though many of these islands and their inhabitants are quite new to us, still the knowledge we gain from a study of their geographical position may be turned to practical uses by the merchant adventurer.

Last, but not least, in this record of geographical progress of the world, is the vast continent of Africa.

As General Strachey, late President of the Royal Geographical Society, in his address of this year, remarks:—

“The reflection can hardly be avoided that, great as has been the advance of exploration in Africa during the last twenty or thirty years, the interest of geographers will, in the immediate future, be more and more centred in that continent. Excluding the polar regions, there is no considerable portion of the earth's surface, unless it is in Africa, the essential outlines of which have not been delineated.”

These words are, I think, absolutely true. Whether we consider Africa in regard to the extraordinary explorations and developments since the commencement of the work of David Livingstone; or from the fact that vast acres of its tropical portion still remain untouched as yet by exploration, and are therefore unknown; or from a contemplation of the teeming millions of its inhabitants, of which the larger portion have never seen a white man; or from the uncompleted work of the late General Gordon, and the re-establishment of a civilised government over the whole of the Nile basin; or from the slavery question, in which our nation has taken the most active and leading part; or from the spectacle of a white man, Emin Pasha, establishing a settled form of government in the heart of the continent, between the two great slave-dealing communities of the Bahr-el-Ghazal and that of the Upper Congo and Lake Tanganika; or from the expedition sent to convey to him the succour he so much needs, under the leadership of Mr. H. M. Stanley; or from the intense interest recently exhibited by the nations of Europe in portioning out Africa between each other—an interest that has led on the west coast to the establishment of the Congo Free State, and the German protectorate in the Cameroons, France and Portugal adding largely to the possessions they already hold, and England contenting herself with strengthening her grip upon the Niger, and on the east coast by the formation of the British spheres of influence; or to the colonies which Great Britain possesses in the southern extremity of this great continent; or to the struggle which sooner or later must be fought out between Christianity and Mohammedanism as regards the native races of Central Africa, in which the river Congo will play an important part: I say when we consider all these and the many other problems of this continent, the vast interests they represent, and the varied influences they may yet exert on the future history of this earth, as well as the extraordinary part which Great Britain has been permitted to play in lifting the veil of mystery and doubt which up to our own times enveloped these regions, we are forced to acknowledge that the country in which the civilised world takes the most active and absorbing interest is Africa, and that the Dark Continent still maintains its supremacy.

As regards Africa, two very remarkable journeys have recently been brought to a successful conclusion—that of Count Teleki, an Austrian, on the north, and that of Mr. Arnot in the regions south of the equator.

The former, entering Africa at Mombasa, at the head of a numerous and well-equipped caravan, passed through the Masai country by what is known as Thomson's route, and, pushing northwards, discovered Lake Rudolph, a large inland salt lake, and by following its shores he was enabled to trace with commendable accuracy its shape,

size, and position. The existence of a large lake, called Samburu, in the direction of Count Teleki's journey, had for some time been spoken of by the Arabs who traded in that region, but nothing definite was known concerning it. Count Teleki also obtained much valuable information of the region between Mount Kenia and Lake Rudolph, its inhabitants, its rivers, and its products; and the details of his most interesting and successful journey have yet to be published.

Mr. Arnot, on the other hand, started in 1883 from Pietermaritzburg with a very slender equipment and hardly any following. His object was to prove the existence of healthy plateaus in the interior of Africa where white men could live and prosecute the work of missionary civilisation without being exposed to the malarial influences which exist in so many parts of Central Africa.

Taking a northerly course, he reaches the Zambesi, whose waters he follows as far as Lealui. From this point his route trends to the west as far as Robongo, the capital of the Bihe country. From Robongo he continues his march to Bailundu, and from thence he reaches Benguela, on the west coast. Thus he crossed Africa in the same direction as Livingstone's first journey, though somewhat to the south of Livingstone's route. While at Bailundu he meets some messengers from Msidi, the chief of the Garengenze country, who beseech him to visit their king; and having replenished his stores, he retraces his steps to the interior.

From January, 1885, to February, 1886, he perseveres in his attempt to reach the capital of Msidi's country, and his efforts are at length crowned with success. After a sojourn among these people for two years, during which time he thoroughly succeeded in obtaining their confidence and that of their ruler Msidi, he returned to Europe in the latter part of last year, but not before he had established two other white missionaries at Mukuru to continue the work he had begun.

He also made several small expeditions during his residence at the Mukuru, most interesting of which was to the cave-dwellers of Urua mentioned by Livingstone. This kingdom of Garangenze is situated to the east of Lake Moero; and Mr. Arnot has recently published a book of his travels, giving very clear and interesting account of these people, their manners, and their customs. Of all Livingstone's followers, Mr. Arnot very closely resembles the great leader in the patient earnestness, the quiet energy, and the scanty resources with which he prosecuted his remarkable journeys.

He has quite recently returned to the west coast of Africa with the intention of rejoining his friends at Garengenze.

The events which attended the expedition under Mr. H. M. Stanley to succour and relieve Emin Pasha are so well known to you all that I shall only attempt a brief recapitulation here.

We have learned from his own pen how, after much suffering and great hardships, he eventually overcame all the difficulties and obstacles which had to be encountered while conducting his caravan from the head waters of the Congo to the Lake Albert Nyanza; that on reaching that lake he met Emin Pasha.

* * * * *

The value of Mr. Stanley's journey and the remarkable energy and courage he displayed, his high scientific attainments, and the information that will result from his labours, are, from a geographical point of view, of the highest interest. The desiccation of the Lake Albert Nyanza, and its influences on the rise and fall of the Nile, is not the least remarkable of these problems. For my own part, I am of opinion that this rise and fall is mainly caused by the rapid growth of tropical water-plants. During the dry season this vegetation increases enormously, and at the first rains large masses of aquatic growth are loosened by the rising of the waters. These masses, in the form of floating islands, pass downwards on the bosom of the flowing waters, and

on reaching a wide and shallow part of the river, such as we find at the Bahr-el-Ghazal, they gradually but quickly collect till they form a dam of sufficient density to obstruct the progress of the river ; and the water thus arrested finds a temporary lodgement in the lake of Albert Nyanza, causing it to overflow its normal boundaries. At length the vegetable dam can no longer withstand the weight and pressure of the water bearing upon it ; a portion gives way ; a channel is opened ; and the river, hurrying on to the sea, overflows the banks of the Lower Nile and drains the lake to a lower level. This is what happens to the Albert Nyanza, which is nothing more than a huge backwater of the Upper Nile basin, and it accounts for the lake being seen at two different levels by those two distinguished explorers, Mr. H. M. Stanley and Sir Samuel Baker, and hence the difference of opinion as to its true extent and size that has arisen between them. We know that this phenomenon takes place on Lake Tanganika, as Stanley found a marked difference in its level on the two occasions he rested upon its shores. He also followed the Lukuga river from the Tanganika lake to its junction with the Congo ; and there is no doubt that a vegetable dam, such as I have described, forms at the point of departure of this river from the lake, and prevents its regular flow till the weight and pressure behind it sweeps all away. During the second year that I was on the Congo we had an unusually heavy flood at the time of the first rains. The river rose several feet in one night, and some months afterwards news came from the Upper Congo that the waters of the big lake had broken through, and this no doubt had reference to the Lukuga river and Lake Tanganyika.

Now, as regards the countries through which we have been passing, there are certain points of great interest connected with the science of applied geography to which I desire to draw your special attention.

The first of these points is the study of the great railway systems of the world, and the application of railways to the development of new countries. Take our Indian possessions, for example. What a change has been wrought, not only as regards the commerce of the country but also with reference to the social condition of its inhabitants and their manners and customs ! The introduction of Indian wheat, by means of these railways, into the markets of Europe has caused a revolution in the trade of that commodity. We find this especially in America, where it has upset the calculations of those gigantic combinations or rings which sought to obtain a monopoly in the supply of this universal article of food. Thus the construction of railways in the East exercises commanding influences over the markets of the West.

Consider also the traffic from China and Japan to America, with its 60,000,000 people, by means of the great Atlantic and Pacific railways, in tea and raw materials. Now, although railways cannot compete with direct traffic by sea, when the necessity for more rapid conveyance of certain goods arises, we find that a combination of sea and land transport is often adopted in preference to the longer route by sea alone.

The development of any country, no matter what its geographical position may be, is enormously increased by the construction of railways. Take the Congo Free State as an instance (which is undoubtedly the finest property in Central Africa). So long as the Upper Congo region, with its miles—measured by thousands—of navigable tributaries, was separated from the Lower Congo by the rapids extending from Stanley Pool to Matadi, this magnificent territory was practically shut to trade and commerce. Every piece of goods in the interior had to be carried on men's heads for more than 200 miles, and all ivory and other products were brought to the coast in the same way. Roughly speaking, such transport costs about £40 per ton.

The Congo Free State has wisely determined to build a railway, of some 250 miles

in length, to cross this cataract region ; and the moment it is completed the future of that country is assured.

H.M. the King of the Belgians has kindly given permission for a Belgian officer of distinction, Captain Thys, to read a paper at this meeting on this railway, which will afford a more detailed account of this wise and patriotic undertaking.

I have mentioned railways as the first point of interest because they are creations of our own time, and have, therefore, a special interest of their own ; but the most important factor in the early history of the science of applied geography, and to which the establishment of our great colonial empire is mainly due, is the record of the merchant adventurers.

Their voyages and exploits, extending to every part of the globe, began at the end of the fourteenth century, in the reign of Henry VIII., when the Cabots (Venetians) sailed from England to Newfoundland, and afterwards to Florida. This expedition and those which followed it were fitted out at the expense of corporations of merchants, with the object of extending the commerce of the country by a search after trade in new and foreign lands. They were placed under the command of some well-known leader, and the results obtained were extraordinary.

In 1530 the merchant adventurers of England attempted the North-west passage, as it is called, to China, and between 1550 and 1578, Sir H. Willoughby, Frobisher, and Sir H. Gibbon all made remarkable voyages.

Between 1585 and 1615, Davis, Hudson, and Baffin were sent by merchant companies to the Polar seas, and their discoveries are handed down by the straits and bays which they discovered, and which bear their names.

In 1580 Drake took the first English vessels into the Pacific Ocean. Drake was not only a bold and successful navigator, but he was also a commander of men, in which he showed rare tact and ability.

In 1588 the merchants of Exeter established a trade with the West African coast, and the Senegal Company was formed.

In 1553 the first effort to reach India was made *viâ* the Cape of Good Hope. It was not, however, till the year 1660 that any progress was made in the East. In that year the East India Company was formed, and it is to the establishment of this company that we owe our great Indian Empire. The year 1669 saw the formation of the Hudson Bay Company—a company which exists at the present day. And so the record goes on down to our own times. Not the least amongst the trading corporations of Great Britain were the merchant adventurers of this city in which we are now assembled ; and they too contributed in no small degree, not only in the past but in the present, to the extension of our geographical knowledge and its application as a science. No doubt the spirit and energy of our Scandinavian forefathers has been fostered and encouraged until it has now found its development in the enterprise and prosperity of this great mercantile centre of the north of England. And the old churches of Jarrow and Monkwearmouth bear further testimony to the fact that, as commerce drew together communities which became centres of maritime energy and progress, religion was not forgotten, and the seed of knowledge and truth thus sown in the early history of the past has spread itself throughout the length and breadth of the great colonial empire of Greater Britain.

Following on the discoveries of the sixteenth and seventeenth centuries, and the marvellous results to which they have given birth, the story of our own times, from a geographical point of view, is quite as wonderful. As I remarked at the beginning of this paper, the discovery of steam as a motive power has brought the world into an extraordinary condition of contactiveness, and quite recently several new companies have been formed in the same spirit and on the same lines as those followed by the old

merchant adventurers. These later creations are being started under more favourable conditions than their predecessors, for they have all the advantages which modern science and modern appliances can afford. The English Government have wisely encouraged and promoted the formation of these trading corporations. In countries where climate and circumstances of environment are not favourable to colonisation by white men, our colonial system of government progresses somewhat slowly. It has not the elasticity, nor the adaptability, to provide for the many contingencies which must naturally arise when a few white men maintain the position of rulers over large areas peopled by savage and uncivilised races.

In the island of Borneo there is the North Borneo Company trading, governing, and civilising a large portion of territory with marked success.

On the west coast of Africa, the Royal Niger Company is developing the great natural resources of that magnificent river, and its tributary the Benue.

On the east coast there is the Imperial British East African Company, operating in what is known as the British sphere of influence north of Zanzibar. Though not a twelvemonth has passed since they commenced their work, their initiatory proceedings have been remarkably successful, and there is every prospect of an early and rapid development of the territory committed to their charge. In the south-eastern portion of Central Africa the African Lakes Company have fairly established themselves; and a new company is now being formed to open up and civilise a further portion of that section of the African continent.

The establishment of these great trading and governing centres is likely to exercise most important influences. They are, as I have before pointed out, from their organisation and objects, better adapted at the outset to compete with and overcome the obstacles which present themselves to established forms of bureaucratic government; at the same time the Government of this country can interfere, in cases of necessity, by the grants that have been made to them of royal charters, under which they carry on their operations.

A wise control and judicious administration, combined with the introduction of commerce and civilisation, will, at no distant date, open these territories to the markets of the world, to the missionary, and to the scientific explorer. The commercial element of geography also enters very largely into their promotion and prosperity because of the fields they open to our home manufactures. It is important here to observe that, if these territories had passed into the hands of other nationalities, but a very limited quantity of British goods would ever have entered into them, and their value, as a market for the industries of the nation, would have been lost.

The establishment of a Geographical Society in this city is of real importance.* Its objects should be the collection of information, and the study of applied geography in all its varied branches and aspects. It should aim to furnish complete information concerning the geography of all parts of the globe. In Chambers of Commerce our large trade centres have, no doubt, means of guiding and controlling some of our most important mercantile operations, but they afford no opportunities to the student, they are not a teaching body; and there are instances where considerable risks have been incurred and heavy losses sustained in some of their ventures, simply from a want of knowledge of geographical data.

I should like to see a Geographical Society in every large city of this Empire, conducted on the lines I have briefly suggested, because the study of, and interest in, the commercial geography of this great Empire and the world is too much neglected

* The Tyneside Geographical Society has been in existence a year or two, and now numbers about 500 members. Its object is chiefly the study of Commercial Geography.

amongst us. Past prosperity, and a tendency to run in the same groove, narrow our commercial horizon. Slowly but surely other nations, competing with us in many parts of the world, are doing so successfully because of the study they make of commercial geography.

It is for this reason I have in my address dwelt strongly upon the question and study of geography as an applied science, and it is for a greater reason I urge its importance, viz., that we may hand down to our children unimpaired the heritage bequeathed us by our forefathers—a heritage gained by courage, energy, perseverance, and patriotism—qualities which, under God's blessing, have made this nation the head of the commerce of the world.

REPORT OF THE DELEGATE TO THE INTERNATIONAL CONGRESS OF GEOGRAPHY, HELD AT PARIS DURING AUGUST, 1889.

THE large number of Geographical Societies on the Continent, and their mutual helpfulness, is perhaps nowhere more fully shown than in the numerous conferences, joint meetings and congresses held by them. And it is somewhat of a satire upon the *greatest commercial* nation of the world, that to day, after several years of effort and agitation, there are in these islands only the Royal, the Manchester, the Royal Scottish, and the Tyneside Geographical Societies in existence. If there is anything which could make Manchester men ashamed of their apathy in this respect it would be to exhibit to them the numerous well-equipped societies, with state and municipal subventions, with their prizes, libraries, museums for pure geography, and for commercial geography, their endless publications, their combinations to send out travellers abroad for information on geography, on trade, commerce, modes of communication, or new markets for goods, and to ascertain the reasons for the decay of old ones.

Whilst our country has made surprising progress by a kind of rule of thumb process, foreign countries have applied themselves to a scientific examination of the question, and having learned all we can tell them, are now pushing out on a solid basis to regions beyond. They fight us, indeed, with our own weapons, but they are our own weapons sharpened. And we shall be dullards, indeed, and shall deserve to take a second place in all commercial matters, if we cannot put our wits to school once more and learn from our whilom scholars, who are now, thanks to their careful training and patient working, becoming our masters. This, perhaps, was the one most striking thought to the delegate of your society, at this congress.

The meeting in the fine rooms of the Paris Geographical Society was divided into seven sections, which were sub-divided into as many as were required. Men met from all parts of Europe to take part in the business. Noblemen, senators, diplomatists, statesmen, professors, members of the Institute, literary, military and naval men, explorers, commercial men and manufacturers, and a host of scientific men attended the Congress.

The following countries were represented—

AMERICA : Argentine Republic, Bolivia, Brazil, Canada, Costa Rica and San Salvador, United States.

AFRICA : Algiers, Egypt, Congo, Senegal, Great Popo, Tunis.

AUSTRALIA : Queensland, Victoria.

EUROPE : France, Belgium, Denmark, England, Holland, Italy, Malta, Prussia and Germany, Portugal, Roumania, Russia, Scotland, Switzerland, Turkey, Wurtemberg, and others.

It would be impossible to mention all the names of the distinguished men who graced the Congress by their presence. The members were most graciously enter-

tained at the Exhibition (several times) ; at receptions by Comte de Lesseps, Prince Napoleon, Count Bizemont, and they dined together at the Hôtel Continental.

When the official report of the Conference comes to hand, a vast amount of instruction will be available for us all.

In a huge gathering of this kind, where a large number of meetings were going on at the same time, it was impossible to attend more than a few. The reporter to the Royal Geographical Society has given a fair report, particularly of the meetings he attended, and more could not be done. Your reporter attended all he could, and they were not many. He will not attempt to do more than to give the classes, in which the subjects discussed were primarily divided as follows :—

GROUP I.—Mathematical Geography, including Geodesy, Topography, Hydrography, Cartography, making 14 sections or divisions of the subjects above.

GROUP II.—Physical Geography, or General Geology, Zoological and Botanical Geography, Meteorology, Climatology, Medical Geography, making 32 sections or divisions.

GROUP III.—Economical and Statistical Geography, or 11 sections or divisions.

GROUP IV.—Historical Geography, History of Geography, and History of Cartography, in 16 sections.

GROUP V.—Pedagogic Geography, in six sections.

GROUP VI.—Travels and Voyages. Each country had been requested to supply this matter, and their reports would be duly received.

GROUP VII.—Anthropology, Ethnology, and Language, in 13 divisions.

These 92 questions, divisions, or sections covered an enormous ground, and some of the papers were of a very remarkable character, from their full exposition of the matter dealt with, and the sharp, scientific method of working. It was a very successful congress, and one that gave great pleasure to assist at. One thing should not be overlooked, viz., the very extraordinary geographical display in the Exhibition of maps, plans, charts, atlases, memoirs, monographs, models, anthropologic models, house models, countries, districts, and towns shown in beautiful reliefs.

The magnificent topographical display by the City of Paris in their two pavilions, the school works, the teachers' text books, and the pupils' work, shown side by side, were very wonderful. The Congress would have done all of us a great amount of good to attend.

A good many members of the society had the pleasure of seeing the wonderful display of the Exhibition and its surroundings, and left Paris astonished and charmed.

HUNDRED AND EIGHTH MEETING

Of the Society, held in the Memorial Hall, Albert Square, Wednesday, October 16th, at 7.30 p.m. The Rev. S. A. STEINTHAL in the chair.

The members began to gather about 7.30 p.m., and examined with great interest a number of spears and curiosities from Lake Nyassa, lent by Mr. F. Moir and the Rev. L. Scott.

The CHAIRMAN read the following letter from Sir H. F. Ponsonby, secretary to H.M. the Queen.

“ Osborne, August 10th. 1889.

Sir,—I am commanded by the Queen to request that you will convey to the members of the Manchester Geographical Society Her Majesty's thanks for the copies of their journals which they have had the kindness to present to the Queen.—I have the honour to be, sir, your obedient servant,

“ (Signed)

HENRY F. PONSONBY.

“ E. Sowerbutts, Esq.”

Letters from Rev. L. Scott, Consul H. E. O'Neill, Governor Moloney, Capt. Lugard, and from H.E. Cardinal Rampollo, were read.

The following is the translation of the letter from H.E. the Cardinal, addressed to the President of the Society :—

"Illustrious Sir,—The Holy Father, who had already admired and praised the noble (sentiments) feelings of the Geographical Society of Manchester, and had, in consequence, in December last, entrusted Monsignor the Bishop of Salford to be his interpreter to convey to your excellency and its college the expression of His special benevolence, has received with marked satisfaction and gratitude the new homage which you have wished to render him in presenting Him four volumes containing "*Le Recueil des Actes Officiels de la dite Société.*" His Holiness received it with much satisfaction, the more so that its contents is of a nature to strengthen still more the mutual relations which will contribute to the good success of that very grand work to which the Holy Father gives powerful impulse, and which the Geographical Society *prend à cœur* in the interest of humanity and civilisation in Africa. Having accomplished the agreeable message which was entrusted to me, in the sovereign name of the Holy Father to thank you for such a donation, I beg your Excellency to accept my most sincere mark of esteem.—The Divine Servant,

"(Signed)

M. CARDINAL RAMPOLLO.

"Rome, 13th August, 1889."

After the letters had been read, the CHAIRMAN uncovered the portrait of His Grace the Duke of Devonshire, presented by the Right Hon. the Marquis of Hartington, and the portrait of the President of the French Republic (M. Sidi Carnot), presented by himself to the Society.

The Rev. PAMPHILE DE VEUSTER (brother of the late Father Damien), then addressed the meeting in a very touching and sympathetic manner, on the work of the late Father Damien and the Leprosy question.

The address of Captain Lugard on "*Nyassa*" was then read by the Secretary.

Mr. F. MOIR exhibited a selection of photographs by the lantern in illustration of Captain Lugard's paper, and gave very graphic illustrations of the country and the condition of the people.

During the evening the members examined the additions to the library of the Society which were on view, as also a collection of Nyassa curiosities lent by Mr. Moir.

Miss WALKER, Mr. R. C. PHILLIPS, and Mr. BEDNALL provided instrumental and vocal music, and refreshments were served during the evening.

The Rev. L. SCOTT gave some incidents of his visit to Nyassa, and moved a vote of thanks to Captain Lugard, Mr. Moir, and the Rev. Pamphile de Veuster for their addresses. Mr. J. DILWORTH-HARRISON seconded the motion, which was carried.

Mr. MOIR responded, asking for the active sympathy of the members for the work being done in that part of Africa.

The Rev. Dr. CASARTELLI moved, and Councillor LEECH seconded, a motion of thanks to the chairman and the musicians.

The CHAIRMAN acknowledged the vote, and the meeting closed at about 10-30.

HUNDRED AND NINTH MEETING

Of the Society, held in the Library, Wednesday, November 6th, 1889, at 11 a.m., to receive Messrs. Wardle, of Tripoli, and J. Rippon, from Formosa and Is. S. Thomé.

A number of members attended, and had a most interesting conversation with both gentlemen. Mr. RIPPON exhibited a valuable collection of photographs of Formosa, Hong Kong, Amoy, the West Coast of Africa, the Portuguese Possessions in Angola, &c.

HUNDRED AND TENTH MEETING

Of the Society, held in the Memorial Hall, Wednesday, November 6th, 1889, at 7-30 p.m.; the Rev. S. A. STEINTHAL in the chair.

Prince KROPOTKIN addressed the members on "What Geography ought to be." The address was illustrated with several maps and views. (See pp. 356.)

Mr. MARK STIRRUP, F.G.S., and others asked questions in relation to the ancient flow of the Siberian rivers, to which replies were given.

The death of Mr. Harold Woolley (one of the members of the Society) having been mentioned, Mr. PERCY GLASS moved, and Mr. E. TOOTILL seconded, a resolution—"That our very sincere condolence be tendered to Mrs. Woolley and the family on the sad event," which was carried.

A very hearty vote of thanks to Prince Kropotkin was moved by the Rev. L. C. CASARTELLI, seconded by Mr. F. ZIMMERN; and Mr. W. SCOTT COWARD (H.M. Inspector of Schools) supported the motion, which was carried.

Prince KROPOTKIN having responded, moved a vote of thanks to the Chairman, which was seconded by Mr. J. HOYLE TODD, and carried.

HUNDRED AND ELEVENTH MEETING

Of the Society, held in the Library, Thursday, November 7th, 1889, at 7-30 p.m.; Mr. J. DILWORTH-HARRISON in the chair.

The minutes of the meetings held October 11th (107), 16th (108), November 6th (109), and 6th (110) were read, and approved.

Presentations were announced from Lieut.-Col. E. Rogers, F.R.G.S., and The Agent-General for New South Wales.

A note from Mr. Guy Hillier was read, explaining that he was leaving England to-day, and was therefrom unable to address the Society, and promising to contribute from abroad.

The election of the following new members for 1890 was announced:—

LIFE.—Mr. F. Smallman.

ASSOCIATES.—Messrs. Thos. Foden, W. Lewis Grant, and Wm. Ward.

An address by Mr. J. RIPPON, A.I.C.E., on "The Portuguese Possessions of Angola and the South-west Coast of Africa," illustrated with a number of photographs lent to the society. (See pp. 359.) Some conversation ensued on this paper.

The report of the Tyneside Geographical Society was read, and the progress of the society noted with pleasure.

The Charter of Incorporation of the British South Africa Company was read, and elicited a spirited discussion. (See pp. 388.)

The news of Dr. PETER'S death was announced, and great regret was expressed.

The SECRETARY made some remarks on the Stanley Expedition, and on the uncertainty of the presence of Emin Bey and Mr. Jephson with Mr. Stanley from the late telegrams.

The meeting closed at a late hour.

HUNDRED AND TWELFTH MEETING

Of the Society, held in the Mayor's Parlour, on Friday, November 15th, 1889, at 3-30 p.m.; His Worship the MAYOR (Alderman Mark, J.P.), in the chair.

The following letter from Mr. J. F. Hutton, J.P., F.R.G.S., was read :—

"51, Marine Parade, Brighton, 13th November, 1889.

"Dear Sir,—I very much regret that I am unable to be in Manchester on Friday, and have the pleasure of meeting Governor Moloney, and of hearing his address. I regret deeply my inability to be present, and express my regard for an old friend who has shown such interest in the development of our trade in Western Africa, and especially in that of his own government of Lagos. Being one of the first European merchants to enter Lagos after its bombardment and capture from the slave traders in 1852, I would gladly have borne testimony to its progress under British rule.—Yours very faithfully,

(Signed) "JAMES F. HUTTON.

"Eli Sowerbutts, Esq."

HIS WORSHIP, in opening the proceedings, remarked upon the excellent and valuable work done by the Society, and commended the Society to the commercial men of the city and district. He then gave Governor Moloney a very cordial welcome to Manchester.

H. E. Governor MOLONEY, C.M.G., of Lagos, then addressed the meeting on "Cotton Interests, Foreign and Native, in Yoruba and generally in West Africa." (See pp. 255—276.)

A number of questions were asked and replied to, and remarks on the address were made by Lt. Col. ROGERS, Mr. R. SYKES, J.P., Mr. W. MATHER, M.P., and others.

The address was illustrated with maps and a large collection of cloths of native manufacture, which were very carefully examined. Invitations had been sent to all the Lancashire Chambers of Commerce.

A very hearty vote of thanks was passed to Governor Moloney for his very valuable address and for the loan of the cloths. The Governor responded, and moved a vote of thanks to His Worship for his kind presidency and the use of his parlour, which was seconded by

The MAYOR briefly responded.

HUNDRED AND THIRTEENTH MEETING

Of the Society, held in the Memorial Hall, on Wednesday, November 15th, 1889, at 8 o'clock p.m.; the Rev. S. A. STEINTHAL in the chair.

H. E. Governor MOLONEY addressed the members on "The Melodies of the Natives of West Africa," and the airs were rendered by Mr. R. C. PHILLIPS on the violin. (See pages 277 to 293.)

The paper was most interesting, and was listened to with great attention.

A very hearty vote of thanks was passed to the Governor and to Mr. Phillips, on the motion of Mr. F. ZIMMERN, seconded by Mr. C. H. STOTT, and supported by the Rev. H. W. LITTLE and the SECRETARY.

The GOVERNOR replied, and proposed a vote of thanks to the chairman, which was seconded by Mr. DOWDALL, and supported by Mr. S. KEYMER.

The CHAIRMAN responded.

HUNDRED AND FOURTEENTH MEETING

Of the Society, held in the Library, Monday, December 16th, 1889, at 7-30 p.m.; Mr. THOMAS SWANWICK in the chair.

The minutes of the following meetings were read and approved : November 7th (111), 15th (112), 15th (113).

Presentations were announced from :—

Messrs. G. Philip and Son.
Mr. Holt S. Hallett, M.Inst.C.E., &c., &c.
The Royal Geographical Society.
Mr. J. J. Cardwell.

The election of the following members for 1890 was announced :—

ORDINARY : MESSRS. Isaac Bentley, Gustav Eckhard, G. W. Fazakerley, J. H. Keymer, Rev. H. W. Little, Charles Marzeback, T. C. Middleton, A.C.A., J. D. Milne, R. M. Pankhurst, LL.D., Robert Riddick, Henry Simon, C.E., James Wilding (in lieu of Associate).

ASSOCIATE : MESSRS. Alfred Ollivant, James Saner, A. L. Thacker, and Mrs. Wilding.

The following letters, in reply to votes of condolence, were read :—

From Lord Winmarleigh.

“Winmarleigh, Garstang, December 5th, 1889.

“Sir,—I beg of you to express to the Council of the Manchester Geographical Society how much I feel their kind message of sympathy with me in my present very great grief. Accept also my thanks for your kind expressions and good wishes.
Yours faithfully,
(Signed) “WINMARLEIGH.”

From Mrs. Macfadyen.

“Whalley Range, December 3rd, 1889.

“Mrs. Macfadyen and family beg to acknowledge receipt of the kind and sympathetic resolution passed by the Council of the Manchester Geographical Society. Dr. Macfadyen always regretted his inability to attend the meetings of the Society.”

From Mrs. Walker and Family.

“Manchester Ship Canal Contractor's Office, December 7th, 1889.

“Dear Sir,—Allow me, on behalf of Mrs. Walker and family, to thank you most sincerely, and through you the Manchester Geographical Society, for the kind resolution of condolence which you have forwarded. We have been deeply touched by the many evidences of sympathy that have been sent to us from all parts of the country and from all classes, showing the universal respect and esteem in which Mr. Walker was held ; and not the least touching of these is the letter that you have so kindly sent. May I ask you to convey our thanks to the mover and seconder of the resolution.—Believe me, yours very sincerely,

(Signed) “LOUIS P. NOTT.

“Eli Sowerbutts, Esq.”

And from Commander G. Holm, R.N.

“Copenhagen, 23rd November, 1889.

“Sir,—I thank you very much for the most interesting “Journal,” Vol. V., 1-3, which you have had the courtesy to send me. I think that I am the European that has the best acquaintance of the people on the East Coast of Greenland, and therefore I feel bound to direct your attention to the note p. 79—“a little-known race,” which in no manner is correct.—Your obedient servant,
(Signed) “GUSTAV HOLM, Commander R.N.”

Mr. J. A. SWANWICK then read a paper by Mr. ALVAN MILLSON, M.A., on "The Lagoons of the Bight of Benin," which was illustrated with a large map. (See pp. 333.)

The SECRETARY then read, "In Tropical Africa," from the *Daily Telegraph* (see pp. 375); "A Spring Ride in Southern Spain," from *The Field* (see pp. 378); "Swaziland," and "Italian Interests in Africa" (see pp. 366), by the Rev. L. C. CASARTELLI, M.A., &c. Considerable discussion ensued on the reading of the papers.

Votes of thanks to Mr. Millson for his address, to Mr. Swanwick for his reading, and to the Chairman, closed a most interesting and profitable meeting.

HUNDRED AND FIFTEENTH MEETING

Of the Society, held in the Library, Friday, December 20th, 1889, at 7-30 p.m., Mr. B. O'CONNOR in the chair.

The minutes of the meeting held December 16th (114) having been read and approved, the election of the following members by the council was announced:—

ORDINARY: MESSRS. C. Dennis (in lieu of associate), Joseph Halliwell, J. A. Swanwick, Henry Terry, Lawrence Wilson, and S. Benson Woodhead.

ASSOCIATE: MESSRS. R. B. Brierley, E.A., J. Crossley, C. E. Hindley, Job Holland, Peter Matthews, jun., and Robert Stewart.

CORRESPONDING: Messrs. Charles Gauthiot, Paris, and James Jackson, Paris.

HONORARY: H. E. Sir Alfred Moloney, G.C.M.G., Governor of Lagos.

The following papers were read: "The Newspapers of the World;" "Geography," by C. Marvin, Tyneside Geographical Society (see pp. 365); "The Great Chinese Railway—text of the Imperial Decree, &c." (see pp. 336); "Siberian Trade," by H. N. Sullivan, Newcastle (see pp. 367); "The Vikings," a review of M. du Chaillu's "Hardy Norsemen" (see pp. 397); "Duke Frederic of Holstein Gottorp, and his attempt in the 17th century to force the foreign trade of Germany through the Port of Bremen," contributed by the Vice-Chancellor of the Victoria University;* "Chinese Chess," from the Royal Asiatic Society's Journal, Shanghai branch, with a game played according to the Chinese rules on a board prepared by two members; a review of the foreign publications received during the year.

An interesting discussion took place on the several papers, and thanks to the readers and the chairman closed a most interesting meeting.

THE FOURTH ANNUAL MEETING

Of the Society was held in the Library, on Monday, October 25th, 1889, at 3 o'clock, p.m., the Rev. S. A. STEINTHAL in the chair.

Professor Core, the Rev. L. C. Casartelli, and a good many members were present.

Letters of apology for absence were read from the Chairman and several members of the Council.

The minutes of the last Annual Meeting were read and confirmed—moved by the Rev. L. C. CASARTELLI, M.A., Ph.D.; seconded by Mr. J. BARKER.

The following Report and the Balance Sheet (which had been duly audited by Messrs. T. Gregory, F.C.A., and J. C. Blake) having been read were adopted:—

* This paper will be published in the next Journal.

THE REPORT OF THE COUNCIL, 1889.

The work of the Society has been carried on during the year 1888 with a fair amount of success.

Keeping in view the objects of the Society, viz., to further the pursuit of the science, by the study of documents, by communication with learned societies, correspondence, and to encourage the right teaching of Geography in colleges and schools, the Council have been able to place before the members a valuable series of addresses on the various scientific, economical, and commercial aspects of the subject. These addresses have been reprinted in the "Journal" of the Society, and form a very handsome contribution to the literature of the subject.

The Society is in active correspondence with a very large number of foreign societies, with missionaries, merchants, consuls, and others abroad.

The Library has been added to very considerably during the year, both by purchase and by gift, and is rapidly becoming a most important collection.

The Council has been pleased to find a great desire to borrow such maps, diagrams, books, and other matters suitable for lending by the members to illustrate papers and addresses in their various localities, and this will probably be found to be one of the most important of the many ways in which the Society can act upon the community.

A list of the addresses given to the Society shows how much very cordial and kindly help has been given, and also the wide range of the studies and inquiries of the members.

The addresses given were as follows :—

EUROPE.

The Heart of Europe from a Railway Car : Mr. T. Newbigging, C.E.

ASIA.

Formosa : Mr. J. Rippon. The Meteorology of the Red Sea : Dr. Black, Edinburgh. The Future of the Railways in Asia.

AFRICA.

Western Equatorial Africa : Mr. Robert Capper, F.R.G.S. The Galla Country : Rev. T. Wakefield. Trade and Native Industries on the Congo : Mr. J. Ainsworth. Conference and Meeting on British Interests in the Nyassa District of East Africa. Nyassa Land : Consul H. E. O'Neill, Mozambique. Austral Africa : Rev. John Mackenzie. Liberia : Consul the Hon. E. B. Gudgeon. A Holiday in Central Africa : Rev. L. Scott.

Addresses from Rev. Professor Lindsay, of the Free Church of Scotland ; Mr. R. N. Cust, LL.D. ; Bishop Smythies, East Africa ; the Rev. J. Mc. Murtrie, M.A., of the Church of Scotland ; the Rev. Horace Waller, F.R.G.S. ; the Rev. Lawrence Scott ; Mr. W. Ewing, African Lakes Company ; the Rev. T. Wakefield, late of Ribé ; Mr. W. B. Blaikie, Edinburgh ; Rev. F. O. Sutton, Newcastle ; Mr. Gilbert Beith, Glasgow ; Rev. G. S. Reaney, Manchester ; Mr. R. C. Phillips, late of the Congo ; Mr. C. P. Hankey, London ; Rev. W. H. Penney, M.A., London ; Mr. C. H. Allen, Anti-Slavery Society ; Mr. W. H. Wylde, late Foreign Office.

AMERICA.

Cruise in Central America : Captain Kiddle, R.N. Paraguay : Edited by Consul J. Parlane, J.P.

AUSTRALIA.

Victoria : The Right Rev. the Lord Bishop of Manchester.

THE POLES.

The History of Antarctic Research ; revised by Admiral Sir Erasmus Ommanney.

GENERAL.

The Society's Diagrams at the Royal Jubilee Exhibiton : The Secretary. Our Water Supply to Large Towns : Councillor Sherratt. State-Directed Emigration : Mr. J. C. Fielden. "Sloyd" : Mr. J. S. Thornton, B.A. Slavery in Africa : Commander Cameron ; Mrs. G. Barboza. The Teaching of Commercial and Technical Geography in Elementary Schools : Mr. J. Silberbach, of Liverpool. Report of the British Association : Mr. F. J. Faraday.

The Conference on British Interests in East Africa, and the Meetings held on the same subject have had great influence in drawing attention to the important work being done in these regions by missionaries and traders, and the Society may be satisfied with the important results which have accrued.

Whilst the minds of the members of the Society have been stirred and informed by this brilliant series of papers, the question of local Geography has not been neglected.

Visits have been made and repeated to great libraries and to the district round. The reports in the proceedings of these visits are full of interest, and the bibliographical work done of permanent value.

The first Continental trip of the Society was made to Antwerp and Brussels, where the members were received with great kindness, and the visit was very profitable indeed. The following is a list of the visits paid :—

January 21, Salford Free Library and Museum ; March 17, Manchester Free Library ; April 21, Art Museum, Ancoats ; April 28, Liverpool Free Public Library, Museum, and Royal Institution ; May 12, Liverpool Free Public Library and Museum ; June 23, Ship Canal—Eastham to Ellesmere Port ; July 20, Boggart Hole Clough, and the Simpson Institute, Moston ; August 11, Booth Hall ; September 7, Brussels, Antwerp, &c., &c.

Not only do the members acquire a large amount of useful knowledge by these visits, but the social element is fostered, and a means is provided of making the members known to each other, deriving much mutual help.

The accounts for the year have been duly audited, and are appended to this Report.

It is to be hoped, as the Society becomes better known and its work appreciated, that a large accession of commercial and philanthropic persons will be made to its roll of membership. The claims of the Society especially appeal to ladies, and to those who are engaged in any way with the educational work of the day.

Death has been busy in our ranks, and we have to regret the passing away of a good many warm friends, and from other causes there must be always a number of resignations. It requires vigorous effort to replace these members, and not only to replace them but to add to them to such an extent that the Society may be able to do, with vigour and effect, the great beneficial and necessary work set before it.

The following were elected to be the Council and Officers of the Society for the next term :—

PRESIDENT.

His Grace the DUKE OF DEVONSHIRE, K.G., Chancellor of the Victoria University.

VICE-PRESIDENTS.

The Right Hon. the Earl of Derby, K.G.	Sir J. C. Lee, J.P.
The Right Hon. Lord Egerton of Tatton.	Sir J. J. Harwood, J.P.
The Right Hon. Lord Winmarleigh.	The Hon. Algernon Egerton, J.P.
The Rev. the Earl of Mulgrave.	Mr. B. Armitage, J.P.
Lord Frederic S. Hamilton.	Mr. Jacob Bright, M.P.
The Right Rev. the Lord Bishop of Manchester.	*†Professor W. Boyd Dawkins, M.A., F.R.S.
The Right Rev. the Lord Bishop of Salford.	Mr. F. W. Grafton, J.P.
His Worship the Mayor of Manchester.	Mr. Edward Hardcastle, M.P.
His Worship the Mayor of Stockport.	Mr. Oliver Heywood, J.P., High Sheriff of Lancashire.
His Worship the Mayor of Salford.	Mr. H. H. Howorth, M.P.
His Worship the Mayor of Rochdale.	Mr. Isaac Hoyle, M.P.
†The Vice-Chancellor of the Victoria University.	*†Mr. J. F. Hutton, J.P., F.R.G.S., Consul for Belgium.
†The Principal of Owens College, Chairman of the Council.	Mr. J. Thewlis Johnson.
The Very Rev. the Dean of Manchester.	Mr. Henry Lee, J.P.
The Very Rev. Monsignor Gadd.	Mr. W. Mather, J.P.
The Right Hon. Sir James Fergusson, Bart., C.I.E., M.P.	Mr. Samuel Ogden, J.P.
The Right Hon. A. J. Balfour, M.P.	Mr. H. J. Roby, M.A.
Sir W. H. Houldsworth, Bart., M.P.	Councillor Henry Samson, J.P.
Sir Humphrey F. De Trafford, Bart.	Mr. C. E. Schwann, M.P.
	*†The Rev. S. A. Steinthal, Vice-Chairman of the Council.

TRUSTEES.

Mr. Alderman C. Makinson, J.P.

Mr. James Jardine, J.P.

| Mr. J. F. Hutton, J.P., F.R.G.S.

TREASURER.

*Mr. T. R. Wilkinson, The Polygon, Ardwick.

COUNCIL.

Mr. Frederic Burton.	Mrs. Bosden T. Leech.
†Rev. L. C. Casartelli, M.A., Ph.D.	Mr. George Lord, J.P.
*Professor T. H. Core, M.A.	Mr. J. H. Nodal.
†Miss Day, Girls' High School.	Mr. James Parlance, J.P.
Chevalier Robert Froehlich, Vice-Consul for Italy.	Mr. Fritz Reiss.
†Mr. M. G. Glazebrook, M.A.	Mons. Leon Gme. Le Roux, Vice-Consul for France.
Mr. George Harker.	*Councillor W. Sherratt.
Mr. Elijah Helm.	*Mr. Mark Stirrup, F.G.S., Hon. Sec. Manchester Geological Society.
Mr. A. Hughes, M.A.	*Mr. Thomas Swanwick.
*Mr. Job Irlam.	
*Mr. Sydney Keymer.	

HONORARY SECRETARIES.

*†Mr. A. R. Gallé, 29, Dale Street.

| *†Mr. F. Zimmern, Hardman Street.

SECRETARY.

Eli Sowerbutts, F.R.G.S., 44, Brown Street, Manchester.

* General Purposes Committee.

† Education Committee.

Messrs. J. S. Thornton, B.A., and Wm. Wardale are also Members of the Education Committee.

Proposed by Mr. BRADBURN, seconded by Mr. SNADDON.

LIST OF MEMBERS,

December 31st, 1889.

Note.—H signifies Honorary, C—Corresponding, L—Life, A—Associate, * Affiliated Societies. All others are Ordinary Members.

- H Aberdare, The Right Hon. Lord, G.C.B., Duffryn, Mountain Ash, South Wales
 Addyman, Thomas, Hill Brook Grange, Bramhall, Stockport
 Alexander, Bernard, Museum Street, Manchester
 Aldred, Thos., F.C.A., Norwood, Derby Road, Heaton Moor
 Aldred, Wm., F.C.A., 8, Essex Street, Manchester
 Allen, C. H., F.R.G.S., British and Foreign Anti-Slavery Society, 55, New Broad Street, London, E.C.
 Allen, Walker, jun., Beech Bank, Bolton Road, Radcliffe
 Andreasian, Ohanness, 100, Portland Street, Manchester
 Andreasian, Mrs. O., Gladys Mount, Stretford
 Anson, The Ven. Archdeacon, Birch, Manchester
 Armistead, Richard, 28, Chambres Road, Southport
 Armitage, B., J.P., Chomlea, Pendleton
 Armitage, George Herbert, 30, Victoria Drive, Sale
 Armitage, Sam., Chaseley House, Eccles Old Road, Manchester
 Armitage, S. F., J.P., Palace Street, Manchester
 Armitage, V. K., M.A., J.P., Swinton Park, Manchester
 Armitage, William, J.P., 95, Portland Street, Manchester
 Arning, Charles, 11, Bloom Street, Manchester
 Arnold, W. A., Haworth's Buildings, Cross Street, Manchester
 Arsenian, A. O., 57, Dickenson Street, Manchester
 Ashburn, William, 36, Portman Street, Whalley Range
 Ashby, Henry, M.D., The Lindens, Lower Park Road, Victoria Park
 Ashton, W. A., Windsor Road, Levenshulme
 Ashworth, Francis, 109, Princess Street, Manchester
 Attkins, Edgar, 33, Princess Street, Manchester

 Baddeley, John, 1, Charlotte Street, Manchester
 Bagley, Ralph (Bagley and Wright), 12, Cannon Street, Manchester
 Bailey, G. H., Westfield, Greenfield
 Bailey, Alderman W. H., Albion Works, Salford
 Baker, William, 38, Brunswick Street, Chorlton-on-Medlock
 Balfour, The Right Hon. A. J., M.P., 4, Carlton Gardens, London, S.W.
 Ball, Edward, 20, Ducie Street, Oxford Street, Manchester
 Balmer, A. W., Crescent Road, Cheetham Hill
 Balmer, J. E., Crescent Road, Cheetham Hill
 Barclay, George, 45, Hanging Ditch, Manchester
 Barker, James, Church Street, Manchester
 Barker, John Lees, Bowdon
 Barker, Reuben C., Kenley, Cheadle
 Barker, Richard, 10, Nelson Street, Lower Broughton
 Barlow, James, Radcliffe
 Barlow, John R., Greenthorne, Edgeworth, Bolton
 Baron, Alderman William, J.P., Castlemere, Rochdale
 Bass, Hermann, 47, Lower Mosley Street
 Bates, John, B.A., Acres Bank, Stalybridge
 Bates, Ralph, J.P., Acres Bank, Stalybridge
 Batho, Thomas, 33, Church Street, Manchester
 Batty, Alderman William, J.P., Market Street, Manchester
 Becker, Miss Lydia E., 9, John Dalton Street, Manchester
 Becker, Wilfred, 14, Cross Street, Manchester
 Beith, Gilbert, J.P., 7, Royal Bank Place, Glasgow
 Beith, J. A., J.P., 14, Bridge Street, Manchester

- Behrens, Charles, 36, Princess Street, Manchester
 Behrens, Henry, 52, Sackville Street, Manchester
 Behrens, Frank, 55, Fountain Street, Manchester
 Behrens, Gustav, 36, Princess Street, Manchester
 ▲Belisha, B. I., 11, Todd Street, Manchester
 ■Belgians, His Majesty the King of the, K.G.
 Bell, Frederick, 97, Shrewsbury Street, Moss Side, Manchester
 Bentley, Isaac, Ford Bank, Bowdon
 ▲Bessant, W. S., Deaf and Dumb Institute, Old Trafford, Manchester
 Beyerlein, Hans (Baerlein and Co.), Blackfriars Street, Salford
 ▲Bickerton, Richard, Richmond Street, Ashton-under-Lyne
 Biema, C. Van, 29, Dale Street, Manchester
 ■Bigot, Professor Leon, Principal du Collège de Sées, Orne
 Birch, Herbert, 54, John Dalton Street, Manchester
 ▲Birley, Thomas Hornby, 9, Beaufort Road, Brooklands
 Black, Surgeon-Major J. M., F.R.C.S.E., 2, George Square, Edinburgh
 Blair, George Beatson, 18, Aytoun Street, Manchester
 Blake, John Charles, 21, Turner Street, Manchester
 Bleakley, Horace W., Myrtle Grove, Prestwich
 ▲Blelock, W., 19a, York Street, Manchester
 Bles, A. J. S., Chorlton Street, Manchester
 Boardman, James, C.A., 64, Cross Street, Manchester
 ■Boddington, Councillor Henry, New Bridge Street, Manchester
 ■Bodio, Professor Luigi, Minister of Statistics, Rome
 ■Bonaparte, Prince Roland, Paris
 ▲Booker, J., 54, Devonshire Street, Higher Broughton
 Booth, Samuel, 748, Rochdale Road, Manchester
 ▲Booth, William, Argyle Buildings, Heywood
 Bostock, Thomas, 11, Bloom Street, Manchester
 ▲Bottomley, J. Alfred, 17, Kirkgate Buildings, Huddersfield
 Bottomley, William, J.P., 43, Derby Road, Southport
 Bowes, G. T., 7, St. Luke's Terrace, Cheetham Hill
 ▲Bowker, A. W., 325, Eccles New Road, Weaste
 ▲Bradburn, James, 8, St. Mary's Parsonage, Manchester
 ▲Bradburn, S. J., F.A.S., 44, Fairlawn Street, Moss Side, Manchester
 Bradley, William, 14, Marshall Place, Cheetham
 Bradshaw, Ed., East View, Whitefield
 Bramwell, Samuel, 4, St. Ann's Square, Manchester
 Bramwell, Thomas, Little Lever, Bolton
 Braund, Herbert, 27, Hulton Street, Moss Side, Manchester
 ▲Brierley, J. Swallow, 42, New North Road, Huddersfield
 ▲Brierley, R. B., B.A., 75, South Street, Rochdale
 Bright, Jacob, M.P., 31, St. James's Place, London
 ▲Broadfield, E. J., B.A., Roselea, Prestwich, Manchester
 ▲Brook, S. Hamill, 6, Wells Street, Buckley Wells, Bury
 ▲Brooks, E. J., 16, Claremont Grove, Barlow Moor Road, Didsbury
 Brooks, Joseph, Councillor, Shudehill, Manchester
 Broome, Joseph, J.P. (Broome, Hallworth, and Foster), St. Peter's Square, Manchester
 ▲Brothers, R. G., 12, Swinton Avenue, Plymouth Grove, Manchester
 ■Bryce, J. Annan, 35, Bryanston Square, London, W.
 ▲Bubier, Louis (Messrs. Holdsworth and Gibb), George Street, Manchester
 ▲Buckley, Alderman B., J.P., Heywood
 ▲Burnham, Samuel, 2, Harwood Place, Old Trafford, Manchester
 *Burnley Lit. and Sc. Club—W. Thompson, Oak Bank, Burnley
 ■Burton, Frederic, Hopefield, Weaste Road, Pendleton, Manchester
 Burton, W. J., 38, Ardwick Green, Manchester
 Butler, E., 386, The Cliff, Broughton
 Butler, Samuel, Peel Causeway, Bowdon
 Bythell, J. K., 7, South Street, Manchester
 ▲Cadman, Wm., Brunswick Villa, Stephen Street, Stretford
 Calvert, D. R., 74, Market Street, Manchester
 ▲Calvert, George W., Denbigh Villa, Levenshulme

- Cameron, Kenneth, 61, Faulkner Street, Manchester
 hCameron, Commander V. L., R.N., C.B., 7, St. George Street, Westminster, S.W.
 ▲Cardwell, J. J., 9, Lorne Grove, Fallowfield, Manchester
 Carter, J. N., 53, Bury New Road, Manchester
 Carver, Benjamin, 7, Lower Mosley Street, Manchester
 Cawley, Fredk., Moss House, Blackley
 Casartelli, Rev. L. C., M.A., Ph.D., St. Bede's College, Manchester
 Chadwick, John, Woodville, Reddish, Stockport
 ▲Chapman, Alfred, Archer Street, Johnson Street, Cheetham
 Cheetham, Walter, New York, U.S.A.
 Child, Cyril C., Rev., 10, Lord Mayor's Walk, York
 Chivers, C. T., 36, Corporation Street, Manchester
 ▲Churchill, Wm., jun., 277, Great Cheetham Street, Manchester
 Clapham, John, The Hills, Prestwich
 ▲Clarke, Charles A., 19, Walnut Street, Cheetham
 Clemson, T. W., Broadhurst, Cheetham Hill
 cClerke, Miss Ellen M., 68, Redcliffe Square, London, S.W.
 ▲Cockayne, Miss, 45, St. Stephen's Street, Salford
 Cohen, Sigismund, 111, Portland Street, Manchester
 ▲Cohen, Meyer, 1, Minshull Street, Manchester
 Colbeck, Rev. A., Stanley House, Lindley, Huddersfield
 cColquhoun, Archibald R., 28, Bryanston Street, London, W.
 Cooper, Philip E., 28, Egerton Terrace, Stockport Road, Manchester
 ▲Cooper, Thomas P., 46, Fountain Street, Manchester
 ▲Copley, F. A., Collegiate Schools, Levenshulme
 Corbishley, Rev. Thomas, Bishop's House, Salford
 Core, Professor T. H., M.A., Staneswood, 8, Oak Drive, Fallowfield
 Costeker, Charles, Moorthorpe, Darwen
 ▲Cottrill, J. T., 58, Denmark Road, Greenheys
 Coubrough, J. (Blanefield Printing Co.), 24, Princess Street, Manchester
 ▲Coventry, Joseph, 34, Linnett Lane, Liverpool
 Crane, P. Moir, Mersey Bank, Didsbury
 Crewdson, Alfred, Springfield, Alderley Edge
 Crippin, Fred., Brynn Hall Collieries, Wigan
 Crofton, H. T., 36, Brazennose Street, Manchester
 Cross, Edward, Bradford House, Bolton
 ▲Crossley, Joseph, 89, Smedley Road, Cheetham
 Crum, William G., 43, Portland Street, Manchester
 Cruse, Henry, Bury, Lancashire
 ▲Curzon, Frank, Victoria Chambers, Leeds

- Davies, Charles J., 10, Talbot Street, Moss Side, Manchester
 Davies, Edward, Hope Street, Salford
 ▲Davies, Ishmael, Ordsal Lane, Salford
 ▲Davies, Peter, 73, Elizabeth Street, Cheetham
 Davies, Richard, 235, York Street, Cheetham
 ▲Davies, W. W., 73, Elizabeth Street, Cheetham, Manchester
 Dawkins, Professor W. Boyd, M.A., F.R.S., Woodhurst, Fallowfield, Manchester
 ▲Dawson, Charles, 8, Carlton Terrace, Heaton Norris, Manchester
 Day, Miss E., Girls' High School, Dover Street, Chilton-on-Medlock, Manchester
 Deakin, Edward, jun., Ryecroft House, Belmont, Bolton
 Deakin, Thomas, Eccles
 Dean, J., St. Petersgate, Stockport
 Dehn, Rudolph, Olga Villa, Anson Road, Victoria Park, Manchester
 Dennett, R. E., British Congo Company, Banana, S.W. Africa
 Dennis, Cammack, Rochdale Road, Bury
 Dent, Hastings Charles, C.E., F.L.S., F.R.G.S., 20, Thurloe Square, London, W.
 Dentith, Thomas, 17, Rectory Road, Cheetham, Manchester
 LDerby, The Right Hon. the Earl of, K.G., &c., &c., Knowles, Prescott
 hDevonshire, His Grace the Duke of, K.G., Devonshire House, London
 Dill, S. M.A., Crescent, Salford
 Dobson, Robert, 46, Bloom Street, Manchester
 ▲Donald, James, 7, Derby Street, Greenheys, Manchester

- Done, Richard, 7, North Road, Longsight
 Donnell, Joseph, Tame Side Mill, Dukinfield
 Donner, Edward, 4, Anson Road, Victoria Road, Rusholme, Manchester
 Dore, J. M., 111, New Lane, Winton
 aDowdall, J. B., Wilton Terrace, Cheetham, Manchester
 aDuckworth, Thomas, 5, Cooper Street, Manchester
 aDuffy, Henry, 6, Butterworth Street, Bradford, Manchester
 aDyson, Humphrey, 518, Rochdale Road, Manchester
 Dyson, John, Birch House, Droylsden Road, Newton Heath
 aDyson, Samuel, 20, Rochdale Road, Manchester
- Eckersley, James, Burnt House, Adlington, Chorley
 Eckhard, Gustav (Reiss Brothers), 11, Quay Street, Manchester
 Eddy, Raymond T., Montford, Bowdon
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 aElston, Thomas, Bury
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 Stott, John, 46A, Market Street, Manchester
 Stott, C. H. (Fildes and Sutcliffe), 17, St. Ann Square, Manchester
 Sturgeon, Thomas, Clapper Hill Grove, Old Trafford, Manchester
 aStuttard, Rev. E. E., Berry View, 782, Rochdale Road, Manchester
 aSutherland, J., M.D., 325, Great Ancoats Street, Manchester
 Sutton, Rev. F. O., M.A., F.R.G.S., Parish Church, Blackburn
 Swanwick, Thomas, Leigh Wood, Holland Road, Higher Crumpsall, Manchester
 Swanwick, J. A., High Bank, Lymm
 Sykes, Adam, Wastbourne House, Heaton Chapel
 Sykes, Rd., J.P. (Callender, Sykes, and Mather), 30, Princess Street, Manchester

 aTait, Mortimer L., Bold Street, Morecambe
 Tallis, Ed. Fox, Wilton Polygon, Cheetham Hill, Manchester
 aTatton, Lees W., 86, Chester Road, Manchester
 Taylor, Frederick, 11 and 13, Fountain Street, Manchester
 Taylor, T. Knox, 4, Randolph Street, Crumpsall
 Taylor, Wm., Rhuddylan House, Deane, near Bolton
 aTelford, Robert, Beaufort House, Burton Road, Withington
 Terry, Henry, High Street, Manchester

AThacker, A. L., Glen Lea, Queen's Road, Bowdon
 Thewlis, J. H., 75, Thomas Street, Manchester
 Thompson, John, Eddisbury Hall, Macclesfield
 Thompson, Alderman Joseph, J.P., Riversdale, Wilmslow, Manchester
 Thomson, John, Beech Bank, Bowdon
 cThomson, Joseph, F.R.G.S., &c., Gatelaw Bridge, Thornhill, Dumfriesshire
 Thomas, George, 28, Deansgate, Manchester
 AThornton, Joseph Smith, B.A., Victoria Park School, Anson Road, Rusholme,
 Manchester
 Tinkler, J. J., 68, Oakworth Street, Blackley
 Todd, J. Hoyle, Preston Avenue, Eccles
 Tootill, Ellis, 9, Minshull Street, Portland Street, Manchester
 Torkington, John C., 7, Hale Road, Bowdon
 Trafford, Sir Humphrey F. de, Trafford Park, Manchester
 Trevor, Wm., Councillor, Heathfield, Newton Heath, Manchester
 Tscharnier, Paul von (Gaddum and Co.), 7, South Street, Manchester
 ATurnbull, Thomas, 98, Burlington Street, Greenheys
 ATysoe, A. E., 21, Cannon Street, Manchester

AUre, William, 11, Cannon Street, Manchester

AVeevers, Harrison, A.M.Inst.C.E., The Lakes, Dukinfield, Cheshire

Wade, Richard, 23a, George Street, Manchester
 AWadsworth, C., Sparthfield, Droylsden Road, Newton Heath
 Wainwright, John, Market Street, Manchester
 AWakefield, Rev. Thos., F.R.G.S., 125, Victoria Road, Headingley, Leeds
 Walkden, John, Lagos House, Prestwich
 Walker, Mrs. Alice, 31, Market Street, Manchester
 AWalker, James N., Hulme's Road, Newton Heath, Manchester
 Waller, Rev. Horace, M.A., Twywell Rectory, by Thrapston, Northampton
 Wallworth, R., The Manor House, Woodley
 AWarburton, John, 227, Fairfield Street, Droylsden
 Ward, Professor A. W., Litt.D., 7, Ladybarn Road, Fallowfield, Manchester
 AWard, Mrs. A. W., 7, Ladybarn Road, Fallowfield
 AWard, William, 5, Fraser Road, Higher Crumpsall
 AWardale, Wm., 19, Henrietta Street, Old Trafford, Manchester
 AWardle, Wm., 6, Phoenix Street, Fountain Street, Manchester
 AWarren, Geo. H., 13, Booth Street, Hulme, Manchester
 Waterhouse, I. C., High Lea, Alderley Edge
 AWatson, Mrs. C. T., Lower Broughton Rectory, Manchester
 Watson, Joseph (Horrockses, Crewdson, and Co.), 55, Piccadilly, Manchester
 Watson, Robert, 56, Park Road, Southport
 Watts, James, Portland Street, Manchester
 AWatts, W. T., 74a, King Street, Manchester
 Watts, Miss, Oak Leigh, Levenshulme
 AWatts, Miss F. E., Rose Lea, Longfield, Urmston
 AWatts, Miss M. E., Rose Lea, Longfield, Urmston
 AWebster, George Vernon, 24, Fernacre, Cheetham Hill, Manchester
 AWebster, John, c/o T. J. Bolland, 14, Cross Street, Manchester
 AWhitaker, John Henry, Lisadel, Flixton, Manchester
 AWhitehead, Wm., Cheetham, Manchester
 Whitworth, Alfred H., 44, Deansgate, Manchester
 Whyman Philip, Rochdale Road, Manchester
 AWild, Wm., 163, Portland Street, Southport
 Wilding, James, 31, York Street, Lower Broughton
 AWilding, Mrs., 31, York Street, Lower Broughton
 Wilkinson, J. F., Pendleton, Manchester
 Wilkinson, Wm., 87, Brunswick Street, Chorlton-on-Medlock, Manchester
 Wilkinson, Robert J., Thompson's Cross, Stalybridge
 Wilkinson, T. R., The Polygon, Ardwick, Manchester
 Williams, J. F., F.R.G.S., Caxton Buildings, Liverpool

Williamson, Wm. Henry, 72, Elizabeth Street, Cheetham, Manchester
 ▲Willoughby, Mrs., 51, Higher Ardwick, Manchester
 Wilson, John, 48, George Street, Manchester
 Wilson, Lawrence, 249, York Street, Cheetham
 Wilson, Thos. Silk, St. Andrew's Chambers, Albert Square, Manchester
 Winmarleigh, The Right Hon. Lord, Garstang
 Winstanley, Thomas, Denton Lane, Hollinwood, Oldham
 Wood, Mrs. A. H., 43, Plymouth Avenue, Chorlton-on-Medlock
 ▲Wood, George, Wellington House, Little Lever, Bolton
 LWood, George W. Rayner, J.P., Singleton Lodge, Bury Old Road, Manchester
 Wood, Henry, 7, St. James's Square, Manchester
 ▲Wood, Thos. (Appleby and Wood), Spring Gardens, Manchester
 ▲Woodford, Edward, 18, Aytoun Street, Manchester
 Woodhead, S. Benson, 28, Victoria Street, Manchester
 ▲Woods, Rev. W. J., B.A., 42, Pendbury Road, Clapton, London, E.
 Woolfenden, Joseph jun., hat manufacturer, Denton
 Woolley, George Stephen, 69, Market Street, Manchester
 Woolley, Herman, Brookside, Singleton Brook, Kersal
 Wrennall, Monsignor Canon, St. Bede's College, Manchester
 Wright, E., 11, New Brown Street, Manchester
 Wrigley, Edwin Grundy, Howick House, Preston
 cWylde, A. B., Ranelagh House, Chiswick

Yaldesgian, S., 16, Queen Street, Manchester
 Yates, J. M., 4, St. James's Square, Manchester
 nYeats, John, LL.D., 7, Beaufort Square, Chepstow
 Young, Arthur, 56, Faulkner Street, Manchester

Zimmern, F. (Messrs. Steintal and Co.), Manchester

RULES.

I. OBJECT AND WORK.

The object of the Manchester Geographical Society is to promote the study of all branches of Geographical Science, especially in its relations to commerce and civilisation.

The work of the Society shall be :—

1. To further in every way the pursuit of the science, as, by the study of official and scientific documents, by communications with learned, industrial and commercial societies, by correspondence with Consuls, men of science, explorers, missionaries and travellers and by the encouragement of the teaching of geography in schools and colleges.
2. To hold meetings at which papers shall be read, or lectures delivered by members or others.
3. To examine the possibility of opening new markets to commerce and to collect information as to the number, character, needs, natural products and resources of such populations as have not yet been brought into relation with British commerce and industry.
4. To promote and encourage, in such way as may be found expedient, either alone or in conjunction with other Societies, the exploration of the less-known regions of the earth.
5. To inquire into all questions relating to British and Foreign colonisation and emigration.

6. To publish a Journal of the proceedings of the Society, with a summary of geographical information.

7. To form a collection of maps, charts, geographical works of reference and specimens of raw materials and commercial products.

8. The Society shall not enter into any financial transactions beyond those necessarily attached to its declared object.

II. ORGANISATION.

9. The Society shall consist of ordinary, associate, corresponding and honorary members.

10. A Council shall be chosen annually from the ordinary members to conduct the affairs of the Society. It shall consist of a President, four or more Vice-Presidents, a Treasurer, two or more Honorary Secretaries (including a Secretary for Foreign Correspondence), and twenty-one Councillors.

11. There shall be three Trustees elected by the Society, who shall hold office until death, disability, insolvency or resignation. They shall be members of the Council by virtue of their office.

12. Any vacancy occurring in the Council during the current year may be filled up by the Council.

III. ELECTION OF MEMBERS.

13. Every candidate for admission into the Society as an ordinary or an associate member must be proposed by a member. The proposal shall be read out at the next Ordinary Meeting of the members, and any objection shall be forwarded in writing to the Secretary within seven days.

14. The election of members is entrusted to the Council. The names of those elected shall be announced from the chair at the next Ordinary Meeting after the election.

15. The Secretary shall within three days forward to every newly-elected member notice of his election, a copy of the Rules of the Society, and a card announcing the days on which the Ordinary Meetings will be held during the session. But the election of an ordinary or associate member shall not be complete, nor shall he be permitted to enjoy the privileges of a member until he shall have paid his first year's subscription. Unless such payment be made within three calendar months from the date of election the election shall be void.

16. The Council shall have power to elect honorary and corresponding members.

17. Women shall be eligible as members and officers of the Society.

IV. PAYMENTS.

18. An ordinary member shall pay an annual subscription of £1 1s., or he may compound by one payment of £10 10s. An associate member shall pay an annual subscription of 10s. 6d. The Society's year shall begin on the first day of January.

19. Members shall not be entitled to vote or to enjoy any other privilege of the Society so long as their payment shall continue in arrear, but associate members shall not vote nor shall they take any part in the government of the Society.

20. The first annual payment of a member elected in November or December shall cover his subscription to the 31st December in the year following.

21. On the first day of January in each year there shall be put up in the rooms of the Society a complete list of the members with the amount of their subscription due, and as the amounts are paid the fact shall be marked on the list.

22. Notice shall be sent to every member whose subscription shall not have been paid by the first of February, and if the arrears are not discharged by the first of July the Council may remove the member from the list of members.

V. MEETINGS.

23. The meetings of the Society shall be of three kinds—Ordinary, Annual, and Special.

24. In all meetings a majority of those present shall decide all questions, the President or Chairman having a casting vote in addition to his own.

ORDINARY MEETINGS.

25. The Ordinary Meetings of the Society shall be held once a month, from the month of October to the month of May, or oftener, if judged expedient by the Council.

26. All members whose subscriptions are not in arrear shall have a right to be present. All ordinary members shall have the privilege of introducing one visitor.

27. The order of proceeding shall be as follows :—

- (a) The minutes of the last meeting to be read and if correctly recorded they shall be signed by the Chairman.
- (b) Presents, whether of money, books, maps, charts, instruments or specimens, made to the Society to be announced.
- (c) The election of new members to be declared and the names of candidates to be read.
- (d) Papers and communications to be read and discussed.

28. At these meetings nothing relating to the rules or management shall be brought forward, but the minute book of the Council shall be on the table at each meeting for the inspection of any member, and extracts therefrom may, with the consent of the chairman, be read to the meeting on the requisition of any member.

29. On occasions of exceptional interest the Council may make provision for a larger admission of visitors.

ANNUAL MEETINGS.

30. The Annual Meeting of the members shall be held at such time and place as the Council shall determine.

31. Fourteen days' notice of this meeting shall be sent to every member within the United Kingdom, who has given his address to the Secretary, and notice of the meeting shall be advertised in such newspapers as the Council may direct.

32. The object of this meeting shall be to receive the Annual Report of the Council and the Treasurer's Balance Sheet, to hear the President's address, to elect the Council and officers for the ensuing year, and to transact any other business.

33. Any two ordinary members may nominate candidates for the Council or for office not later than one week prior to the day of election and the names of candidates so nominated shall be at once put up in the rooms of the Society. The election of the Council and officers shall be by ballot.

SPECIAL GENERAL MEETINGS.

34. The Council may call a Special General Meeting of the Society whenever they shall consider it necessary, and they shall do so if required by twenty ordinary members.

35. A week's notice of the time and object of every Special Meeting shall be sent to all members. No other business shall be entertained than that of which notice has been thus given.

36. Twenty ordinary members shall form a quorum.

VI. COUNCIL AND OFFICERS.

THE COUNCIL.

37. The government of the Society shall be entrusted to the Council, subject to the rules of the Society.

33. The Council shall annually elect a Chairman and Vice-Chairman.

39. The President or the Chairman, or any three members of the Council, may at any time call a meeting thereof, to which every member of the Council shall be summoned.

40. Seven shall form a quorum.

41. In order to secure the more efficient study and treatment of the various subjects which constitute the chief work of the Society, the Council may appoint Committees for special purposes. These Committees, with the approbation of the Council, may associate with themselves any persons—whether members of the Society or not—from whom they may desire to obtain special assistance or information. The Committees shall report to the Council the results of their proceedings.

42. The President, Chairman, Vice-Chairman of the Council, and the Honorary Secretaries, shall, by virtue of their offices, be members of all Committees appointed by the Council.

PRESIDENT AND VICE-PRESIDENTS.

43. The President is, by virtue of his office, the chairman of all the meetings of the Society. In the absence of the President, one of the Vice-Presidents may preside.

CHAIRMAN OF THE COUNCIL.

44. It is the duty of the Chairman of the Council to see that the rules are properly observed, to call for reports and accounts from Committees and officers, and to summon, when necessary, special meetings of the Council and of Committees.

TREASURER.

45. The Treasurer has the charge of all accounts; he shall pay all accounts due by the Society after they have been examined and approved by the Council.

46. He shall see that all moneys due to the Society are collected, and shall have power, with the approval of the Council, to appoint a collector. All moneys received shall be immediately paid to the bankers of the Society.

47. The bank passbook and the books of account shall be laid upon the table at every ordinary meeting of the Council.

48. The accounts shall be audited annually by two members, who shall be elected at an ordinary meeting at least one month before the Annual Meeting.

SECRETARIES.

49. The duty of the Honorary Secretaries shall be:—

- (a) To conduct the correspondence of the Society and of the Council.
- (b) To attend the meetings of the members and of the Council, and minute their proceedings.
- (c) At the ordinary meetings, to announce gifts presented to the Society since their last meeting; to read the names of all new members and of candidates for admission and the papers communicated to the Society, which have been directed by the Council to be read.
- (d) To have immediate superintendence of all persons employed, to make arrangements for the meetings of the Society, and to take charge of all maps, books, furniture and other effects.

50. It shall be the more especial duty of one of the Honorary Secretaries to conduct, as may be directed by the Council, correspondence with Foreign Societies and with persons resident abroad.

51. In addition to the Honorary Secretaries, there shall be a paid Secretary appointed by the Council, whose duties shall be to assist the Honorary Secretaries, to issue the notices of the Council and of the Society and to act under the instructions of the Council.



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